Agglomeration in Workplace and Migrant Workers' Wages in China: an Explanation from the Perspective of Collective Actions

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Abstract

The paper aims at exploring the relationship between agglomeration in workplace and migrant workers' wages in China and proposes a preliminary framework based on Olsen's theory of collective actions to explain the relationship rather than the traditional perspective of productivity. The findings are as follows: first, other factors fixed, migrant workers have many fellow villagers in the workplace are more likely to obtain more wages comparing with other separate ones; second, migrant workers characterized as Male, Non-local, born in the Middle and West regions, exclusive of permanent labor contract and the corresponding enterprises characterized as Private ownership, Small-scale, located at the Middle and West regions benefit more from agglomerating in workplace; third, the agglomeration in workplace raises more wages for migrant workers in the middle and upper ends of income distribution than those in the middle and lower ends, while those in the uppermost and lowermost ends of the income distribution are exceptions; lastly, the explanations for the results above from the perspective of internal collective actions are more persuasive than traditional view of productivity change and the corresponding implications for the policy makers are strikingly different.

Key Words: Informal network; Agglomeration in workplace; Collective action; Migrant worker; Wages

1 Introduction

Labor economists and other social scientists have long recognized that informal networks benefits laborers. In United States and some West European countries, the minorities employ informal networks to migrate from their original countries to the migrant destinations as well as to seek better jobs, and it is also common for these minorities to agglomerate in residence to live their lives more conveniently. It seems that the information technology and other formal institutions tend to crowd out the role of the informal networks, especially in those well-developed countries. However, despite the rapid development of information technology and the process of institutionalization, the informal networks still play a significant role in the labor markets across countries. The empirical results show that people using informal networks to seek their jobs account for 30% to 60% across the world. Even in the most developed countries such as United States, the percentage of people using informal networks is also above 30%, the share of which tends to be larger in the less developed countries (Corcoran, Datcher and Duncan, 1980; Bewley, 1999; Mardsen, 2001; Lori Beaman and Jeremy Magruder, 2010).

When seeking jobs, the informal networks mainly function as an intermediary, mostly due to a lack of formal access, to get more favorable jobs. The practice is more prevalent among people with lower human capital. After entering a certain enterprise, as the formal institutions to protect workers' interests such as collective bargaining come into effect, the information sharing mechanism through informal networks seems to be powerless with regarding to the labor market outcomes. That is consistent with a large number of studies devoted to the relationship between formal collective bargaining and workers' labor market outcomes over the last several decades, and few attention is paid to the internal informal network after entering the enterprise (Barry T. Hirsch, David A. Macpherson and Edward J. Schumacher,2002; Barry T. Hirsch,2004).

However, the formal collective bargaining witnesses a decline in most developed countries regardless of the fact that the union wage premium is anchoring around 15% (H. Gregg Lewis, 1986). The falling rate of unionization contributes to factors such as the adjustment of industrial structure in the process of globalization, the development of technology, less support from the government and fiercer opposition against trade union from employers (William T.Dickens and Henry S. Farber, 1990; David

G.Blanchflower and Richard B.Freeman, 1992; Henry D.Farber and Bruce Western, 2001). The less efficiency of formal collective bargaining also explains the increasing inequality among workers to some extent (David Card, 2001; Hiromi Hara and Daiji Kawaguchi, 2008). The traditional approach of securing harmonious industrial relations through unionization and formal collective bargaining is challenged. Consequently, the informal collective actions emerge more frequently and devastatingly such as the incidents of "Occupy wall street" in 2011. The remedy may not try to find another more powerful organization to represent the interests of laborers but to have a better understanding of what they are asking for individually.

As for the less developed countries, the situation is quite different. In contrast to the falling rate of unionization in most of the well developed countries, the institutionalization of industrial relations is just at the beginning in most developing countries such as China. The motivation behind the process is to secure workers' interests, reducing massive collective incidents unexpected and keeping persistent development of social economy. However, the result may not be as satisfactory as expected due to the potential dilemma that the moment to transform for a better situation is also subject to be the most dangerous moment for the whole society (Alexis de Tocqueville, 1856). The mass, especially the inferior ones, tend to let off anger as for their long-term unsatisfactory situation and be more urgent to fight for an equal identity and payoff. The traditional informal collective actions may not diminish or eliminate dramatically in the short term when introducing the formal collective bargaining to deal with the industrial relations, but tends to be more frequently if not handled appropriately. Therefore, how to respond to the individual demands really matters to avoid the massive collective actions unexpected, while the foremost issue is to figure out the mechanism behind the informal collective actions.

Both the developed countries and the developing countries are in a dilemma to secure harmonious industrial relations in the following years regardless of their different backgrounds. As for China, the migrant workers have contributed significantly to the process of urbanization and industrialization. The total number of migrant workers reaches more than 250 million, accounting for a large percent of the total labor force. However, most of them are unjustly paid and fail to safeguard their own interests due to insufficient and discriminatory institutions such as household registration system. Only by the recent years are their situation gradually improved owing to the measures such as the negotiation of collective contracts. However, most

of the policies and regulations are still intervened significantly by the government or the employer, the similar collective bargaining in western countries does not come into being (Simon Clarke, Chang-Hee Lee and Qi Li,2004;Simon Clarke, Chang-Hee Lee and Qi Li,2004). In spite of the fact that the formal institutions and regulations guarantee a better situation for migrant workers, the informal collective actions are more prevalent in recent China.

The previous studies mostly consider informal networks as a tool to seek better jobs at the individual level, but focus little attention on the collective actions brought by informal networks (illiam J. Carrington, 1996; Yannis M. Ioannides and Adriaan R. Soetevent, 2006). For instance, laborers may employ the informal networks as strategies to raise higher wages for the same jobs rather than to conduct job-seeking individually, and the paper defines this action as the informal collective bargaining as the mechanism is similar to the formal collective bargaining of trade union. Besides, the former researches of collective actions are restricted to formal organizations and institutions such as the trade unions in developed countries, and few studies are conducted to explore the informal collective actions, theoretically or empirically (Mancur Olson, 1966). However, there is no denying that the informal collective actions are not rare in developed countries while appear to be more prevalent in most developing countries. Although some recent studies consider the effect of agglomeration in residence on workers' wages, they concern more about the perspective of human capital spillovers and still fail to take into consideration the informal collective actions.

The paper aims at exploring how the informal networks influence migrant workers' wages from the perspective of informal collective actions in China. The informal networks here refer to the fellow villagers in large-scale agglomerating in the workplace, differing from the situation with agglomeration in residence but at different enterprises. To reach the final conclusions, we employ the econometric model to test and quantify the relationship using the micro data of Rural-urban Migrant in China (RUMiC) in 2008. Furthermore, we propose a preliminary framework based on Olsen's collective actions to explain the empirical results, in contrast to the traditional perspective of productivity. The study not only extends our understanding of informal networks employed by migrant workers to improve their situation in the labor market, but also provides some policy implications upon how to avoid or reduce massive collective incidents unexpected in future China and other developing countries.

The results of study reveal that migrant workers with many fellow villagers around the workplace have better labor market outcomes. Exactly, other factors fixed, the agglomeration in workplace increases the hourly wages by 5.8%. The explanations lie in the facts that those migrant workers who have many fellow villagers in the workplace are more likely to be in close relationship with each other as well as to enjoy more extensive information sharing, subjecting them to informal collective bargaining behavior more frequently than otherwise separate workers. When employees engage in the collective bargaining behavior, they are equipped with increasing bargaining powers comparing with employers, thus resulting in an improvement of labor market outcomes. Therefore, migrant workers with many fellow villagers around are more likely to obtain higher wages due to their increasing bargaining power through the informal collective actions. Also, as the improvement in labor market outcomes subjects to their collective bargaining power, or the efficiency of collective actions, which is determined by factors such as the initial level of income, expected benefits, level of internal information sharing, expected cost and individual share of the total benefits, the disparities in the relative income effect among groups are explainable. Lastly, the paper implies that the living situation of migrant workers can be substantially improved and the probability of taking collective actions can be decreased dramatically with more investment on migrant workers' human capital such as job training, the abolition of the household registration system, the equalization of basic public service, and more effective collective bargaining institutions, avoiding high risk of transforming from the previous economic welfare to the non-economic matters such as social justice and civil rights with regarding to the object of collective actions.

The structures of the remaining contents are as follows: the next section makes a summary and reviews the previous literatures. Section 3 deduces the theoretical framework for the collective actions of migrant workers in China. Section 4 describes the econometrics model specification and identification strategies; Session 5 introduces the data, measurement of variables and provides summary statistics. Section 6 presents the estimation results and section 7 concludes.

2 Literature review

The following section further explains how the research makes sense from the perspective of previous studies. The first line of research is concerning about the relationship between informal networks and labor market outcomes. Although the application of informal networks is everywhere, it is widely used by migrant workers across the countries.

At the first stage, people from the original countries migrate to the local place through informal networks. William J. Carrington, Enrica Detragiache and Tara Vishwanath (1996) characterize a dynamic model of migration in which moving costs are declining with the stock of migrants. They use the model to explain why large-scale migration started in 1915 and not earlier. Enrico Moretti (1999) proposes the probability of migrating to countries depends positively on the social networks that link the migration to that country to explain the pattern of Italian migration to the Americas. Yuyu Chen, Ginger Zhe Jin, and Yang Yue (2010) find a 10-percent-point increase in the migration rate of co-villagers raises one's migration probability by 7.27 percent points using instrumental variables in the 2006 China Agricultural Census.

After arriving at the destination, people employ informal networks to seek better jobs. Montgomery (1991) develops an adverse-selection model which incorporates a simple social structure. The model explain why workers who are well connected might fare better than those who are poorly connected and why firms hiring through referral might earn higher profits. Kaivan Munshi (2003) attempts to test for the presence of social networks among Mexican migrants in the U.S. labor market and verify that the same individual is more likely to be employed, and to hold a preferred nonagricultural job when his network is exogenously larger. Linda, Datcher and Loury (2006) indicate that the better matches and the limited choices hypotheses may be simultaneously valid for different types of contacts. In the case of the better matches' story, using high-wage-offer contacts results in higher compensation, greater worker satisfaction because of improved matches between workers and firms, and reduced turnover. In the case of the limited choices story, using low-wage-offer contacts also generates longer job tenure. However, it also signals a limited range of job alternatives and results in greater worker dissatisfaction and in lower rather than higher wages. John Knight and Linda Yueh (2008) find that social network is positively correlated with incomes of employed persons in the urban labor market in China.

Another stage is that people agglomerate in residence through informal networks. Per-Anders Edin, Peter Fredriksson and Olof Aslund (2003) estimate the causal effect on labor market outcomes of living in enclaves and find that living in enclaves improves labor market outcomes for less skilled immigrants when sorting is taken into account. Also, Members of high-income ethnic groups gain more from living in an enclave than members of low-income ethnic groups. Patrick Bayer, Stephen Ross, and Giorgio Topa (2008) find evidence that residing on the same versus nearby blocks increases the probability of working together by over 33 percent. The results also indicate that this referral effect is stronger when individuals are similar in socio-demographic characteristics and when at least one individual is well attached to the labor market. Hellerstein, Melissa McInerney, and David Neumark (2008) use matched employer-employee data to measure the importance of network effect for groups broken out by race, ethnicity and various measures of skill. The evidence indicates that these types of labor market networks do exist and play an important role in determining the establishments where workers work, that they are more important for minorities and the less-skilled, especially among Hispanics, and that these networks appear to be race-based. Elizabeth Ananat, Shihe Fu and Stephen L. Ross (2011) document that wages of nonwhites, and particularly of blacks, appear to raise less with agglomeration of employment and concentrations of human capital than do white wages. They also find that an individual's return to agglomeration in wages rises with the share of workers in a work location who have the same race as this individual.

Nevertheless, few studies have conducted to explore the relationship between informal network and workers' wages from the perspective of collective bargaining behavior at the collective level rather than the job-seeking process at the individual level. Those studies exploring the relationship between agglomeration in workplace and workers' labor markets outcomes are mainly concerning about the productivity mechanism (Mas and Moretti, 2006; Bokenblom and Ekblod, 2007; Nanda and Sorenson, 2008).

Another line of research is about the how the collective action is going on. In contrast to the previous opinion that groups consist of individuals with common interest tend to further broaden the interest of the whole group, however, Mancur Olson (1963) opposes the argument and proposes that individuals in small groups are more likely to take collective actions than those in large groups in general and groups with selective incentive mechanism have higher possibilities to take collective actions than groups without selective incentive mechanism. And his critical point lies in the fact that the participation in the collective actions outweigh its corresponding costs.

Afterwards, there are enormous studies in Western countries concerning about the effect of collective bargaining institutions upon workers' labor market outcomes (H. Gregg Lewis, 1963; David G. Blanchflower and Alex Bryson, 2002; Barry T. Hirsch, 2004; David G.Blanchflower and Richard B.Freeman, 2008). However, the collective bargaining institutions in China are quite different from those in most of the Western countries. The consultation system is far more a collective bargaining mechanism than a kind of supervision over enterprises on their implementation of the fundamental laws of labor. Therefore, despite the fact that the current union institutions in China improve the inferior situation of workers to some extent, the insufficient and ineffective institutions fail to safeguard their due interests (Simon Clarke, Chang-Hee Lee and Qi Li, 2004; Xiaodan Zhang, 2009; Sarah Biddulph, 2012).

In sum, the previous studies exploring the relationship between informal networks and labor market outcomes can be mainly divided into three stages: migration, job mobility and agglomeration. And the stage of agglomeration can be further parted into agglomeration in residence and agglomeration in workplace. All the informal networks above influence workers' labor market outcomes through improving one's job opportunity except the situation of agglomeration in workplace. Even the recent studies exploring the relationship between agglomeration in workplace and workers' wages are concerning about the perspective of productivity and few study explores the relationship from the perspective of informal collective actions. However, the viewpoint is not unconvincing due to the fact that the formal collective bargaining does not function well in recent China.

3 Theoretical frameworks

The theoretical framework is an extension of Olsen's theory of collective action. The crucial point of Olsen's theory is that the decision to participate into the collective action subjects to the condition that benefits that individual gains through the action outweigh its corresponding costs. Thus, individuals in smaller groups are more likely to take collective actions than those in larger groups, and individuals in groups with selective incentive mechanism are more likely to take collective actions than those without selective incentive mechanism.

To propose the theoretical framework, the paper begins by analyzing the factors influencing the migrant workers' participation into the collective action and draws the conclusions that individuals with lower wages, membership of smaller groups, extensive information sharing within groups are more likely to take collective actions. Also, individuals with relatively higher wages are also quite likely to take collective actions when accounting for a large share of total benefits. The aforementioned arguments are based on the following assumptions: firstly, the utility of increasing benefits for one unit is equal to one unit decrease in costs; secondly, one unit increment in benefits raises its corresponding costs for less than one unit; thirdly, individuals with lower initial wages, membership of smaller groups, and more extensive information sharing are expecting higher benefits from the collective actions; fourthly, individuals with higher expected benefits, lower expected costs, and larger share in terms of total benefits are more likely to take collective actions. Therefore, others factor fixed, those migrant workers with agglomeration in workplace enjoy more extensive information sharing comparing with other separate ones, expecting higher benefits, are more likely to take collective actions, which is also applicable when taking into consideration the endogenous productivity derived from the agglomeration in workplace.

Besides, just as the right-to-management model implies, proposed by Nickell and Andrews in 1983, the wages is an increasing function of bargaining power with respect to employees over their corresponding employers. Consequently, migrant workers with higher probability to take collective actions, increasing their bargaining power, are more likely to achieve better labor market outcomes, while the level of improvement subjects to the efficiency of taking collective actions, which is determined by the size of group, initial level of wage, individual share of the total benefits and level of information sharing. Despite the economic intuitions above, the paper deduce the propositions logically as follows.

Proposition 1: Agglomeration in workplace tends to motivate migrant workers to participate into collective actions, thus improving their wages.¹

We first assume that T = PY + (1 - P)X,

T is the factual income got through collective action

Y is the highest income got through collective actions ,which is determined by one's productivity and we consider it as exogenous here

X is the initial income (fixed),

P is the level of information sharing among fellow villagers,

,and Y > X, and 0 < P < 1.

Besides, F_i is the individual share among total benefits,

 S_g is the scale of membership taking collective actions,

C is the cost to take collective actions, which is determined by Y.

Therefore, Individual benefits through the collective actions can be described as: $V_i = F_i S_g T = F_i S_g (PY + (1 - P)X)$, and the net benefits can be further expressed as: $A_i = V_i - C = F_i S_g (PY + (1 - P)X) - C$, A_i derivation of Y deduces the optimal value when the condition $F_i S_g P = dC/dT$ is satisfied. However, what counts firstly is whether one will participate into the collective action or not rather than how much contribution one makes. The decision to take collective actions is directly subjects to the satisfaction of condition $F_i S_g (PY + (1 - P)X) > C$.

Before deducing the conclusion, we make two assumption: the first assumption is that if P=0, than $F_iS_gX < C$, no one will participate into the collective actions when there is no information sharing. The second assumption is that if P=1, then $F_iS_gY > C$, one will participate into the collective action undoubtedly when there are full information sharing.

Therefore, the conclusion is that migrant workers with many fellow villagers in the company have more information sharing than other separates ones, and the larger P contributes to higher expected benefits of collective actions and higher probability to take collective actions. The conclusion above is based on the assumption that productivity is exogenous. When productivity is endogenous, we assume Y = Y(P),

¹ The paper defines the effect as relative income effect.

while dY/dP > 0, Y + P dY/dP - X > 0, then the productivity is determined by the level of information sharing, higher information sharing brings higher productivity;

Besides , if P=1, then $Y = Y^*$; if P=0, then $Y = \overline{Y}$, Y^* is the maximum productivity one can achieve, and \overline{Y} is the normal productivity without human capital spillovers. Plus the two assumptions above, we can also draw the conclusion that agglomeration in workplace contributes to higher probabilities of taking collective actions.

We further employ the right-to-management model proposed by Nickell and Andrews in 1983, which imply that the wages is an increasing function of bargaining power with respect to employees over their corresponding employers. Therefore, combined with the deductions above, we conclude the proposition.

Proposition 2: The level of relative income effect tends to be higher for migrant workers with lower initial wages

We assume that the level of relative income effect is determined by the efficiency of collective actions (γ), or the willingness to participate into collective actions. The paper consider migrant workers' probability of taking collective actions as a function of expected benefits and costs: $P(\cdot) = F(T, C)$, while T = T(y, S), C = C(T),

To deduct the conclusion, we further make the following assumptions:

Firstly, the utility of increasing benefits for one unit is equal to one unit decrease in costs: dF/dT + dF/dC = 0,

Secondly, one unit increment in benefits raises its corresponding costs for less than one unit: 0 < dC/dT < 1,

Thirdly, individuals with lower initial wages and membership of smaller groups are expecting higher benefits from the collective actions: dT/dy < 0, dT/dS < 0,

Fourthly, individuals with higher expected benefits, lower expected costs, and larger share in terms of total benefits are more likely to take collective actions:dF/dT > 0, dF/dC < 0

Then we conclude that dF/dy = (dF/dT) * (dT/dy) + (dF/dC) * (dC/dT) * (dT/dy) = [(dF/dT) + (dF/dC) * (dC/dT)] * (dT/dy) < 0

Furthermore, we take into consideration the share one accounts for the total benefits *A*. We extend the equation as: $P(\cdot) = F(T, C, A)$, while T = T(y, S), C = C(T);

A = T * K(T)/(S * T) = K(T)/S = A(S, K(T)), factor K show the extent one deviate from the average share, larger K mean larger share and higher deviation; 1 < K < S, K = K(T), dK/dT > 0, dA/dK > 0, dF/dA > 0, dA/dS < 0 We conclude that

$$dF/dy = (dF/dT) * (dT/dy) + (dF/dC) * (dC/dT) * (dT/dy) + (dF/dA) * (dA/dK(T)) * (dK(T)/dT) * (dT/dy) < 0$$

QED

Proposition 3: The level of relative income effect tends to be larger for migrant workers in smaller size of groups.

We assume that the level of relative income effect is determined by the efficiency of collective actions (γ), or the willingness to participate into collective actions. The paper consider migrant workers' probability of taking collective actions as a function of expected benefits and costs: $P(\cdot) = F(T, C)$, while T = T(y, S), C = C(T),

To deduct the conclusion, we further make the following assumptions:

Firstly, the utility of increasing benefits for one unit is equal to one unit decrease in costs: dF/dT + dF/dC = 0,

Secondly, one unit increment in benefits raises its corresponding costs for less than one unit: 0 < dC/dT < 1,

Thirdly, individuals with lower initial wages and membership of smaller groups are expecting higher benefits from the collective actions: dT/dy < 0, dT/dS < 0,

Fourthly, individuals with higher expected benefits, lower expected costs, and larger share in terms of total benefits are more likely to take collective actions:dF/dT > 0, dF/dC < 0

Then we conclude that dF/dS = (dF/dT) * (dT/dS) + (dF/dC) * (dC/dT) * (dT/dS) < 0

Furthermore, we take into consideration the share one accounts for the total benefits A. We extend the equation as: $P(\cdot) = F(T, C, A)$, while T = T(y, S), C = C(T); A = T * K(T)/(S * T) = K(T)/S = A(S, K(T)), factor K show the extent one deviate from the average share, larger K mean larger share and higher deviation; 1 < K < S, K = K(T), dK/dT > 0, dA/dK > 0, dF/dA > 0, dA/dS < 0Then we conclude that dF/dS = (dF/dT) * (dT/dS) + (dF/dC) * (dC/dT) *

$$(dT/dS) + (dF/dA) * (dA/dS) + (dA/dK) * (dK/dT) * (dT/dS) < 0$$

QED

Proposition 4: The level of relative income effect tends to be larger for migrant workers with higher level of information sharing.

We assume that the level of relative income effect is determined by the efficiency of collective actions (γ), or the willingness to participate into collective actions. The paper consider migrant workers' probability of taking collective actions as a function of expected benefits and costs: $P(\cdot) = F(T, C)$, while $T = T(y, S, \eta)$, η is the level of information sharing, larger η means higher expected benefits: y' = $(\eta y_1 + (1 - \eta)y)$, C = C(T)

,
$$0 < \eta < 1$$

To deduct the conclusion, we further make the following assumptions:

Firstly, the utility of increasing benefits for one unit is equal to one unit decrease in costs: dF/dT + dF/dC = 0,

Secondly, one unit increment in benefits raises its corresponding costs for less than one unit: 0 < dC/dT < 1,

Thirdly, individuals with more extensive information sharing s are expecting higher benefits from the collective actions: $dT/d\eta > 0$,

Fourthly, individuals with higher expected benefits, lower expected costs, and larger share in terms of total benefits are more likely to take collective actions:dF/dT > 0, dF/dC < 0

Then we conclude that $dF/d\eta = (dF/dT) * (dT/d\eta) + (dF/dC) * (dC/dT) * (dT/d\eta) > 0$

QED

The propositions above mainly point out how other factors will influence the efficiency of collective actions or the level of relative income effect, which is in sharp contrast with the traditional perspective of productivity change. Even if the paper is unable to provide direct empirical evidence to prove that agglomeration in workplace brings about more collective actions due to the lacking of data, but is still able to convince that the perspective of collective actions seems to be a better alternative explanation for the relationship when the view of productivity is unconvincing in terms of the empirical results.

4 Model specification and identification

In this section we specify two models and discuss the identification strategies.

The first model aims to figure out whether there is a wage gap between migrant workers with many fellow villagers in the workplace and those separate ones. The paper defines the effect as relative income effect in the following analysis. The model specification is based on Mincer equation.

 $LogWage = \alpha X + \beta Informal + \epsilon$ ------(4.1)

The explained variable is migrant workers' wages in log, while the explanatory variable refers to whether there are agglomerations in workplace for migrant workers. Besides, the controlled variables include migrant workers individual characteristics such as age, sex, education, working time for the present job and its square, working experience and its square, reserve wage, household registered residence, working contract and enterprises characteristics such as ownership, scale, location, and ε is the error term of the model.

The second model aims to explore whether the agglomeration in workplace will influence migrant workers return to experience in the long term. The paper defines the effect as the absolute income effect, in contrast to the previous relative income effect. The model specification is based on the first model, plus a cross term of working time for the present job and agglomeration in workplace.

 $LogWage = \alpha X + \beta Informal + \gamma Informal * Exper + \epsilon ------ (4.2)$

The explained variable is migrant workers' wages in log, while the explanatory variable refers to the cross term of agglomeration in workplace and working time for the job. Besides, the controlled variables include agglomeration in workplace and other controlled variables the same as the first model.

We estimate the first model by pooling all the data, as well as by sex, huji, state of contract, scale of enterprise, ownership of enterprise and location of enterprise.

As for the identification strategies, the paper mainly deals with two issues. The first issue lies in whether the agglomeration in workplace influence migrant workers' before entering companies, or whether the informal network within the enterprises affect the migrant workers' wages by providing better job opportunities rather than more bargaining power through collective actions. To test the assumption, the paper employs the following model.

 $LogWage = \alpha X + \beta Informal + \delta Job_seeking + \varepsilon$ (4.3)

The model specification is based on the first model, plus the variable "job_seeking". The coefficient δ tries to verify whether migrant workers get higher wages through better jobs provided by informal networks or not.

The second issue refers to the endogeneity problem. The problem is common in most of the causal analysis. Despite the fact that the first step above rule out some possibilities to some extent, the paper further test whether the explanatory variable is exogenous based on Hausman test (1978). The benchmark model:

 $LogWage = \Phi_i Z_i + \gamma Informal + \mu \qquad (4.4)$

The first step is to estimate the model:

Informal = $\Phi_i Z_i + \varphi_{i+1} Z_{i+1} + \varphi_{i+2} Z_{i+2} + v$ ------ (4.5)

The explained variable is about the agglomeration in workplace, while z_{i+1} and z_{i+2} are exogenous variables. The former refers to "what's the proportion of labor force in your hometown migrating for work?", and the latter refers to "during the recent Chinese Lunar New Year, how many people in total did you send your greetings in various ways".

The second step is to estimate the model:

LogWage = $\Phi_i Z_i + \gamma Informal + \delta \hat{v} + \varepsilon$ ------ (4.6) As there is no correlation between z_j and μ , there is no correlation between Informal and μ only if there is no correlation between v and μ . To be exact, the equation $\mu = \delta v + \varepsilon$ can provide evidence for the endogenity of explanatory variable only if the model accept the null hypothesis : $\delta = 0$.

To estimate the econometrics models above, the paper mainly employs the OLS method to estimate the average effect. Besides, the paper also uses the Quantile regression methods to figure out the relative income effects across the income distribution.

5 Data and descriptive analysis

The source of data comes from the survey of Rural-urban Migrant in China (RUMiC) in 2008. The survey consists of three parts: the Urban Household Survey, the Rural Household Survey and the Migrant Household Survey. It was initiated by a group of researchers at the Australian National University, the University of Queensland and the Beijing Normal University and was supported by the Institute for the Study of Labor (IZA), which provides the Scientific Use Files. The financial

support for RUMiC was obtained from the Australian Research Council, the Australian Agency for International Development (AusAID), the Ford Foundation, IZA and the Chinese Foundation of Social Sciences. The paper chooses the Migrant Household Survey to conduct the following research. The total sample size is 8446. One crucial matter concerning about sampling design is that the sampling frame is defined on the bases of workplaces rather than residence, which is fundamental to the definition of the explanatory variable.²

The sample used in this paper is constructed as follows: firstly, we select workers whose current work status is employed (including wage earner, farmer or self-employed). We further select workers whose current primary job is a wage work. Besides, we select workers whose current residence is dormitory or construction site. Lastly, we select workers whose accommodation is provided by companies. The final sample includes 2334 workers.

As for the explanatory variable, the paper chooses the dummy variable "do you live close to many fellow villagers" to reflect whether there are agglomerations in workplace for migrant workers. The reasons are as follows: the samples used in the paper are wage workers whose accommodations are provided by companies, including dormitory and construction site. Therefore, those workers living close to many fellow villagers are more likely to work at the same companies and agglomerate in workplace. By pooling the sample, we find that around 58% migrant workers have many fellow villagers around. When divided by the location of enterprises, the agglomeration in workplace is more prevalent for migrant workers working at the west regions (62%) and middle regions (59%). Besides, if divided by the registered residence, migrant workers born at west regions and middle regions are more likely to agglomerate in workplace (63% and 60% respectively), while that percentage is 48% for the east regions. Also, male workers (59%).

As for the explained variable, the paper uses the hourly wage in log. To get the hourly wage, the paper divides the monthly wage by total working hour in a month. The monthly wage refers to "what is your average monthly income from current

² This is mainly because a sizable proportion of migrant workers in China live in workplace dormitories, construction sites and other workplaces. Thus, the residential based sampling will be biased due to the omission of this group of migrants.

primary job?", while the monthly working hour is calculated by multiplying weekly working hour by 30 and then dividing the result by 7. The weekly working hour refers to "how many hours on average do you work at current primary job per week?". Besides, variables such as sex, age, edu and region dummies are regarded as controlled variables. Variable "job_seeking" refers to whether workers get the present job through the informal approach or formal approach. Those workers whose job is introduced by family members, relatives, friends and acquaintance are classified as the informal approach, while those workers whose job is get through other approach are classified as formal approach. Variable "hukou" refers to whether workers whose registered residence is local city (county). Variable "exper" refers to how long do workers first migrate out for work. Variable "contra" refers to whether there is a permanent contract more than one year between employees and employers. Variable "employ_num" refers to whether the number of employees in the company is below 50 or not.

Some summary statistics are listed in table 5.1. Before exploring the causal effect of agglomeration in workplace and migrant workers' wages, we try to figure out whether there are statistical relations between agglomeration in workplace and migrant workers' wages. The average and median of hourly wage for migrant workers with many fellow villagers around is 5.83 and 5 in turn, higher than other migrant workers (5.66 and 4.86 in turn). Besides, Figure 5.1 presents the income distribution of migrant workers with many fellow villagers around and those not, respectively. We find that migrant workers with many fellow villagers around have larger share of workers on the middle and high end of income distribution and smaller share of workers on the lower end of income distribution, while the highest end is an exception. Also, figure 2-6 show the income distribution between different groups, and we find that migrant workers characterized as male, non-local and with permanent contracts as well as their corresponding enterprises characterized as private ownership, small-scale are more likely to have larger share of workers at the higher ends of income distribution and smaller share of workers at the lower ends of income distribution.



Figure 5.1

Figure 5.2 depict the income distribution of migrant workers working at private enterprises and non-private enterprises, respectively. The results show that migrant workers working at private enterprises have larger share of workers at the lower ends of the income distribution while migrant workers working at non-private enterprises account for a larger share of workers at the higher ends of income distribution. Figure 5.3 shows the income distribution of migrant workers at small companies and large companies, respectively. The results is that migrant workers at small enterprise enjoy larger share of workers at the lower ends of income distribution while migrant workers at large enterprises account for larger share of workers at the higher ends of income distribution. Figure 5.4 presents the income distribution of male migrant workers and female migrant workers. The results show that male workers have a higher share of workers at the higher ends of income distribution while female workers account for a larger share of workers at the lower ends of income distribution. Figure 5.5 show the income distribution of local migrant workers and non-local migrant workers. The results reveal that non-local migrant workers enjoy larger share of workers at the higher ends of income distribution while local migrant workers account for larger share of migrant workers at the lower ends of income distribution. Figure 5.6 shows the income distribution of migrant workers with permanent contracts and those not. The results point out that migrant workers with permanent

contracts have larger share of workers at the higher ends of income distribution while migrant workers without permanent contracts account for lower share of workers at the higher ends of income distribution.

Lastly, we also compare the income distribution between migrant workers with agglomeration in workplace and those not under different situation categorized above.

6 Results and discussions

The results of the benchmark model (Table 6.1: model 1) show that migrant workers with many fellow villagers around the workplace are more likely to earn higher wages. To be exact, other factors fixed, agglomeration in workplace increases migrant workers' hourly wages by 5.8%. Furthermore, the decomposition of income disparity among two groups explains that no more than 30% of the difference can be explained by the disparity with respect to individual characteristics, while the remaining disparities contribute to their different wage mechanism, or wage discrimination (Table 6.5). The paper proposes that the different wage mechanism lies in the efficiency of collective actions among migrant workers in a given company to achieve better labor market outcomes. For migrant workers with many fellow villagers around, their more extensive level of information sharing contributes to higher expected benefits through collective actions and higher probability to participate into the informal collective bargaining actions. Just as the right-to-management model proposed by Nickell and Andrews in 1983, the wages is an increasing function of bargaining power with respect to employees over their corresponding employers, thus migrant workers with agglomeration in workplace are more likely to get higher wages comparing with otherwise separate ones. One challenge for the theoretical framework proposed by the paper is that the information sharing mechanism can improve productivity as well, implied by most previous studies (Mas and Moretti, 2006; Bokenblom and Ekblod, 2007; Nanda and Sorenson, 2008), while the wage disparity of groups may contribute to the distinguishing productivity. Despite the fact that the theoretical framework is compatible with the productivity change due to the different level of information sharing, the empirical results followed further prove that the perspective of collective action is more persuasive to explain the wage disparity between groups while the perspective of productivity is more unconvincing by further studies. (main results, how to distinguish efficiency of collective action and productivity change)

The paper further uses the sub-sample of ownership to explore the relationship (Table 6.2: model 2 and model 3) and finds that the relative income effect is more significant for migrant workers at the private enterprises (7.5%) while less significant for migrant workers at the non-private enterprises (1%). Moreover, the results of benchmark model show that migrant workers working at private enterprises earn 10.5% less than those at other enterprises when other factor fixed. It seems a puzzle in terms of traditional perspective of productivity change or human capital spillovers due to the agglomeration in workplace as workers benefits more from agglomeration of higher skill workers if we consider workers' income is directly proportional to their skills. However, the perspective of collective action proposed by the paper can cope with the seemingly tough issue. The paper argues that migrant workers at private enterprises are paid more poorly comparing with non-private ones, with higher expected benefits through collective actions, are more likely to participate to participate into the collective actions. Thus, the higher efficiency of collective actions contributes to the more significant improvement. The arguments above can be strengthened by the different relative income effect between migrant workers with permanent contracts (5.5%) and those not (6%) as migrant workers with permanent contracts earn 5.2% higher than those without permanent contracts (Table 6.2: model 8 and model 9).

Another piece of evidence is to explore the relative income effect in terms of the scale of enterprises (Table 6.3: model 4 and model 5). The findings are that the relative income effect is more significant for migrant workers at small enterprises (7.6%) and less significant at large enterprises (3.4%). What is more, migrant workers working at small enterprises earn 10.5% less than those at large enterprises. The traditional view with respect to the productivity also fails to explain the results as larger agglomerations bring about more human capital spillovers. However, the paper argues that migrant workers in groups of small scale are more likely to take part in the collective actions, which is also implied by Olsen's theory of collective actions. Thus, migrant workers at small enterprise are more likely to have higher efficiency in terms of collective actions and better labor market outcomes when we consider small groups are more likely to exist at small enterprises.

Meanwhile, the paper compares the relative income effect between male and female migrant workers (Table 6.2: model 6 and model 7) and finds that the male migrant workers benefits more from the agglomeration in workplace (6.9%) while the

effect is less significant for female migrant workers (4%). Meanwhile, the results of benchmark model show that male workers earn 11% more than female workers when other factors fixed. The facts above is not only unexplainable in terms of the traditional perspective but seem to conflict with the previous arguments. However, just as the proposition for the results of full sample above, the results is explainable with respect to the level of information sharing. The paper argues that male workers are more likely to be in close relations with each other and enjoy more extensive level of information sharing. Thus, the higher efficiency of collective actions largely brought by information sharing contributes to better labor market outcomes for male workers comparing with female workers. The arguments above can be further strengthened by the different relative income effect among local migrant workers (3.8%) and non-local migrant workers (8.3%) as local workers earn 2.8% less than non-local workers (Table 6.2, 6.3: model 10 and model 11).

Besides, the paper finds that relative income effects for migrant workers born at middle regions (7%) and west regions (8.9%) are more significant while less significant for migrant workers born at east regions (2.2%); the relative income effect is more significant for migrant workers working at middle regions (11.2%) and west regions (12.4%) while less significant for migrant workers working at east regions (2.6%). The results of benchmark model show migrant workers from the middle and west regions earn 7.6% and 6.9% less than those from the east regions respectively, migrant workers working at middle and west regions earn 22.9% and 36.6% less than those at east regions. Therefore, the disparities of relative income effects are explainable with the arguments above to some extent (Table 6.3, 6.4: model 12 model 13 model 14 model 15 model 16 model 17).

To fully propose the argument, the paper further explores the relative income effect in terms of income distribution (figure 6.1). The relative income effect s across the income distribution imply that the relative income effects of the middle and higher ends are larger than those in the middle and lower ends in general, while the migrant workers in the lowest and highest ends of the income distribution are exceptions. The facts above seems to be inconsistent with previous studies of the distributional effects brought by unions (Brigham R. Frandsen, 2012), which assert that the lower-skilled workers benefit more from the collective bargaining. However, the paper argues that lower-skilled workers face more opportunity costs when losing the present jobs due to participating into collective actions, while the opportunity costs are relatively low for

higher-skilled workers. Thus, the efficiency of collective actions for higher-skilled workers tends to be higher if the incentive of lowers opportunity costs outweigh that of lower expected benefits due to the level of initial income. The arguments above can be strengthened by migrant workers born or working at the west regions (figure 6.2 figure 6.3). Meanwhile, migrant workers born or working at the middle regions have larger relative income effects in lower ends of the income distribution (figure 6.4 and figure 6.5), which is similar to the previous studies upon the effect of unions. The paper proposes that these lower-skilled workers have more extensive level of information sharing, and the advantages from the higher expected benefits even surpass the disadvantage of losing the present job.

Also, the results of absolute income effect reveal that migrant workers with many fellow villagers around have no significant advantage upon the return of experience over other separate ones. Therefore, despite the facts that agglomeration in workplace influences migrant workers bargaining power and improve their labor market outcomes in the short term, the collective actions are still insufficient to safeguard their justified interests, largely due to the lower human capital for most migrant workers as well as dominant roles of employers.

Lastly, just as the paper describes above, the identification strategies are fundamental to the findings above. The results of tests guarantee that all the findings aforementioned are appropriate and rational. The test of model specification shows that whether migrant workers employ informal network to find the present jobs or not exert no significant effect on their wages (Table 6.4: model 18). The results further rule out the possibilities that migrant workers benefit from informal network when entering the enterprises and justify the internal mechanism brought about better labor market outcomes for migrant workers. Besides, the results of Hausman test argue that the explanatory variable is exogenous, providing fundamental support for the causal relations above (Table 6.5: model 19).

7 Conclusions

The conclusions of the research are as follows: as for the empirical results, the agglomeration in workplace has a positive effect on migrant workers' wages. To be exact, other factors fixed, those migrant workers with fellow villagers in large-scale around increase wages per hour by 5.8% in average comparing with other separate

workers, the size of which is larger than that by increasing the formal education received by one year (4.2%), as well as that by signing permanent labor contracts with employers (5.2%), and is equivalent to the total return of increasing experience by one year. However, compared with the relative income effect above, the absolute income effect owing to the agglomeration in workplace is not significant, economically and statistically. That is to say, the agglomeration in workplace exerts little effect on the return of experience. Further studies upon the relative income effect reveal that migrant workers characterized as Male, Non-local, born in the Middle and West regions, exclusive of labor contract more than one year and the corresponding enterprises characterized as Private ownership, Small-scale, located at the Middle and West regions benefit more from the agglomeration in workplace. Besides, the agglomeration in workplace raises more wages for migrant workers in the middle and upper end of income distribution than those in the middle and lower end, while those in the uppermost and lowermost end of the distribution is an exception. Last but not least, the decomposition of income disparity among two groups explains that no more than 30% of the difference can be explained by the disparity with respect to individual characteristics, while the remaining disparities contribute to their different wage mechanism, or wage discrimination.

The explanation for the results lies in the fact that those migrant workers who have many fellow villagers in the enterprises are more likely to be in close relationship with each other as well as with more extensive information sharing, subjecting them to collective action more frequently and effectively than otherwise separate workers, offsetting the inferiority owning to lower human capital and institutional block to some extent. When employees engage in the collective bargaining behavior, they are equipped with increasing bargaining powers comparing with employers, thus resulting in an improvement of labor market outcomes. Therefore, migrant workers with many fellow villagers around are more likely to achieve higher wages due to their increasing bargaining power through the collective actions. Furthermore, as the level of improvement in terms of wages subjects to their collective bargaining power, or the efficiency of taking collective action, which is determined by factors such as the initial level of income, level of internal information sharing and individual share within the total benefits, the disparities in the relative income effect among groups are explainable. Lastly, comparing with the traditional practice of contributing the economic benefits of agglomeration to the improvement of productivity, which makes the policy implications that more agglomerations bring about better economic performance, however, the paper explores the relationship between agglomeration in workplace and migrant workers' wages from the perspective of collective action, putting more emphasis on the inferiority of migrant workers, and argues that diminishing and eliminating the institutional obstacles facing them is indispensable to guarantee a harmonious industrial relations and sustainable economic development. To be exact, the paper implies that the living situation of migrant workers can be substantially improved and the probability of taking collective action can be decreased dramatically with more investment on migrant workers' human capital such as job training, the abolition of the household registration system, the equalization of basic public service, and more effective collective bargaining institutions, avoiding high risk of transforming from the previous economic welfare to the non-economic matters such as social justice and civil rights with regarding to the objectives of collective action.

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		Table 5.1					
Variable	Description	Obv.	Mean	Med	Std.	Min	Max
logwage_month	Monthly wage(log)	2329	7.1	7.1	0.4	5.3	8
logwage_hour	Hourly wage(log)	2320	1.6	1.6	0.5	-0.5	3
sex	sex (0/1)	2334	0.7	1	0.5	0	
age	Age	2334	29.4	26	11	15	-
hukou	Registered residence	2334	0.2	0	0.4	0	
formal_edu	Formal Education	2300	9.2	9	2.3	1	
exper	Working time	2312	3.9	3	4.2	0.1	-
exper_2	Working time square	2312	32.7	9	86	0.0	12
exper_total	Experience	2316	7.8	6	6.3	0.1	
exper_total2	Experience square	2316	101.1	36	165	0.0	14
	Get job through						
job_informal	informal network	2274	0.7	1	0.5	0	
	(0/1)						
contra	Permanent contract (0/1)	2329	0.5	1	0.5	0	
close_same	Agglomeration in workplace (0/1)	2334	0.6	1	0.5	0	
migrate_rate	Percentage of migration	2296	56.5	60	20	0	1
greeting_num	Network	2332	31.6	20	46	0	10
logmini_expend iture	Expenditure (log)	2327	6.4	6.4	0.6	0	9
exper_close	Cross term	2312	2.4	0.3	3.9	0	,
exper_close2	Cross term	2312	0.1	0	3.4	-3.8	
own_private	Ownership of enterprise (0/1)	2334	0.7	1	0.4	0	
_Ihuji_2	Dummy	2334	0.5	0	0.5	0	
_Ihuji_3	Dummy	2334	0.3	0	0.45	0	
_Iworkplace_2	Dummy	2334	0.2	0	0.4	0	
_Iworkplace_2	Dummy	2334	0.2	0	0.4	0	
employ_num	Scale of enterprise (0/1)	2334	0.5	0	0.5	0	

Appendix

	Dependent variable (logwage_hour)				
	model 1	model 2	model 3	model 4	model 5
sex	0.11	0.093	0.151	0.094	0.133
	(5.67)**	(4.18)**	(3.80)**	(3.33)**	(4.98)**
age	-0.005	-0.004	-0.01	-0.003	-0.007
	(4.97)**	(3.32)**	(4.29)**	(2.14)*	(5.16)**
formal_edu	0.042	0.044	0.036	0.049	0.037
	(10.14)**	(9.26)**	(4.13)**	(7.76)**	(6.63)**
exper	0.035	0.036	0.044	0.032	0.038
	(6.36)**	(5.67)**	(3.59)**	(3.70)**	(5.23)**
exper_2	-0.001	-0.001	-0.001	-0.001	-0.001
	(4.18)**	(3.83)**	(2.39)*	(2.04)*	(3.68)**
exper_total	0.023	0.022	0.022	0.026	0.02
	(4.70)**	(4.06)**	(2.14)*	(3.62)**	(2.97)**
exper_total2	0	0	0	0	0
	(2.22)*	-1.48	-1.29	-1.53	-1.56
logmini_expenditure	0.158	0.158	0.141	0.145	0.171
	(10.98)**	(9.63)**	(4.71)**	(6.87)**	(8.68)**
hukou	-0.028	0.005	-0.147	-0.016	-0.054
	-1.05	-0.18	(2.48)*	-0.41	-1.46
close_same	0.058	0.075	0.01	0.076	0.034
	(3.21)**	(3.56)**	-0.28	(2.81)**	-1.37
_Ihuji_2	-0.076	-0.086	-0.068	-0.051	-0.104
	(3.07)**	(2.92)**	-1.49	-1.36	(3.17)**
_Ihuji_3	-0.069	-0.09	-0.026	-0.061	-0.076
	(2.21)*	(2.45)*	-0.44	-1.24	-1.9
_Iworkplace_2	-0.229	-0.201	-0.285	-0.323	-0.131
	(9.01)**	(7.04)**	(5.11)**	(8.46)**	(3.87)**
_Iworkplace_3	-0.366	-0.352	-0.389	-0.43	-0.29
	(10.70)**	(9.26)**	(4.75)**	(8.52)**	(6.02)**
own_private	-0.105			-0.087	-0.113
-	(4.89)**			(2.23)*	(4.44)**
employ_num	-0.105	-0.097	-0.129		
	(5.49)**	(4.54)**	(3.02)**		
contra	0.052	0.071	0.011	0.078	0.034
	(2.86)**	(3.41)**	-0.29	(2.85)**	-1.36
Constant	0.314	0.131	0.66	0.166	0.359
	(2.80)**	-1.04	(2.77)**	-1.01	(2.37)*
Observations	2238	1655	583	1072	1166
R-squared	0.36	0.32	0.36	0.33	0.32

Table 6.1

Absolute value of t statistics in parentheses

		14010 0.2			
	Dependent variable (logwage_hour)				
	model 6	model 7	model 8	model 9	model 10
sex			0.085	0.134	0.211
			(3.25)**	(4.66)**	(4.62)**
age	-0.006	-0.003	-0.006	-0.005	0
	(4.79)**	-1.35	(3.75)**	(3.46)**	-0.06
formal_edu	0.041	0.046	0.04	0.042	0.051
	(7.93)**	(6.35)**	(7.24)**	(6.68)**	(4.94)**
exper	0.037	0.039	0.039	0.035	0.014
	(5.58)**	(3.43)**	(4.83)**	(4.53)**	-1.08
exper_2	-0.001	-0.002	-0.001	-0.001	-0.001
	(3.61)**	(2.93)**	(3.22)**	(3.24)**	-1.01
exper_total	0.033	0.004	0.022	0.023	0.026
	(5.46)**	-0.48	(3.22)**	(3.38)**	(2.10)*
exper_total2	-0.001	0	-0.001	0	-0.001
	(3.22)**	-0.45	(2.13)*	-0.91	-1.31
logmini_expenditure	0.173	0.133	0.187	0.126	0.087
	(9.88)**	(5.28)**	(9.47)**	(5.95)**	(2.20)*
hukou	-0.003	-0.067	-0.025	-0.032	
	-0.1	-1.59	-0.62	-0.86	
close_same	0.069	0.04	0.055	0.06	-0.038
	(3.04)**	-1.35	(2.24)*	(2.25)*	-0.85
_Ihuji_2	-0.091	-0.034	-0.126	-0.013	0.225
	(2.93)**	-0.86	(3.93)**	-0.33	-1.17
_Ihuji_3	-0.075	-0.065	-0.14	0.016	-0.409
	-1.95	-1.25	(3.44)**	-0.33	(4.84)**
_Iworkplace_2	-0.204	-0.296	-0.228	-0.254	-0.583
	(6.56)**	(6.82)**	(6.50)**	(6.66)**	(3.18)**
_Iworkplace_3	-0.338	-0.403	-0.349	-0.402	0
-	(7.85)**	(7.23)**	(7.76)**	(7.56)**	(.)
own_private	-0.121	-0.065	-0.083	-0.129	0.069
-	(4.58)**	-1.78	(2.95)**	(3.89)**	-1.25
employ_num	-0.11	-0.11	-0.086	-0.123	-0.217
	(4.67)**	(3.43)**	(3.26)**	(4.36)**	(4.78)**
contra	0.028	0.106			0.065
	-1.24	(3.57)**			-1.43
Constant	0.327	0.423	0.263	0.461	0.494
	(2.41)*	(2.13)*	-1.75	(2.73)**	-1.61
Observations	1518	720	1172	1066	361
R-squared	0.34	0.4	0.36	0.33	0.32

Table 6.2

Absolute value of t statistics in parentheses

Table 6.3					
	Dependent variable (logwage_hour)				
	model 11	model 12	model 13	model 14	model 15
sex	0.09	0.124	0.076	0.149	0.084
	(4.22)**	(3.12)**	(2.54)*	(4.58)**	(3.34)**
age	-0.006	-0.006	-0.004	-0.005	-0.005
	(5.36)**	(3.02)**	(2.81)**	(2.70)**	(3.42)**
formal_edu	0.042	0.046	0.045	0.033	0.045
	(9.29)**	(5.11)**	(7.34)**	(4.47)**	(8.43)**
exper	0.039	0.058	0.034	0.031	0.036
	(6.19)**	(4.34)**	(3.99)**	(3.45)**	(4.38)**
exper_2	-0.001	-0.002	-0.001	-0.001	-0.001
	(3.74)**	(3.25)**	(2.44)*	(2.52)*	(2.37)*
exper_total	0.022	0.029	0.022	0.018	0.016
	(4.17)**	(2.71)**	(2.92)**	(2.28)*	(2.63)**
exper_total2	0	-0.001	0	0	0
	-1.93	(2.48)*	-1	-0.3	-1.45
logmini_expenditure	0.167	0.14	0.14	0.215	0.179
	(10.88)**	(4.89)**	(6.69)**	(7.73)**	(10.03)**
hukou		-0.055	-0.042	0.013	-0.018
		-0.69	-1.06	-0.32	-0.25
close_same	0.083	0.022	0.07	0.089	0.026
	(4.17)**	-0.57	(2.58)*	(2.72)**	-1.1
_Ihuji_2	-0.077				-0.058
	(3.05)**				(2.16)*
_Ihuji_3	-0.074				-0.078
	(2.34)*				(2.33)*
_Iworkplace_2	-0.206	-0.231	-0.251	0.045	
	(7.64)**	(2.84)**	(8.05)**	-0.53	
_Iworkplace_3	-0.385	-0.415	-0.379	-0.344	
	(10.58)**	(2.34)*	(2.15)*	(9.34)**	
own_private	-0.135	-0.102	-0.095	-0.131	-0.156
	(5.78)**	(2.37)*	(2.93)**	(3.37)**	(5.89)**
employ_num	-0.084	-0.081	-0.109	-0.12	-0.028
	(4.03)**	-1.89	(3.89)**	(3.69)**	-1.13
contra	0.052	0.131	0.033	0.033	0.07
	(2.59)**	(3.30)**	-1.21	-1.06	(2.89)**
Constant	0.282	0.333	0.333	-0.051	0.195
	(2.33)*	-1.51	(2.00)*	-0.25	-1.39
Observations	1877	528	1066	644	1308
R-squared	0.36	0.33	0.3	0.42	0.27

Absolute value of t statistics in parentheses

Table 6.4				
	Dependent variable (logwage_hour)			
	model 16	model 17	model 18	model 19
sex	0.099	0.191	0.105	0.11
	(2.26)*	(4.79)**	(5.36)**	(5.14)**
age	-0.007	-0.005	-0.005	-0.005
	(3.48)**	(2.09)*	(4.48)**	(4.56)**
formal_edu	0.044	0.028	0.042	0.042
	(4.85)**	(2.90)**	(10.00)**	(7.60)**
exper	0.034	0.039	0.035	0.034
	(2.83)**	(3.67)**	(6.25)**	(5.51)**
exper_2	-0.001	-0.001	-0.001	-0.001
	(2.50)*	(2.82)**	(4.10)**	(3.75)**
exper_total	0.039	0.016	0.022	0.02
	(3.46)**	-1.53	(4.50)**	(4.10)**
exper_total2	0	0	0	0
	-1.06	-0.49	(2.13)*	-1.67
logmini_expenditure	0.1	0.149	0.156	0.157
	(3.27)**	(3.59)**	(10.78)**	(9.03)**
hukou	-0.055	0.041	-0.028	-0.029
	-1.33	-0.96	-1.02	-0.97
close_same	0.112	0.124	0.06	0.051
	(2.83)**	(2.97)**	(3.23)**	-0.15
_Ihuji_2	-0.073	-0.033	-0.071	-0.074
	-0.85	-0.15	(2.83)**	-1.42
_Ihuji_3	0.175	-0.073	-0.062	-0.071
	-1.42	-0.47	(1.97)*	-1.13
_Iworkplace_2			-0.231	-0.228
			(8.99)**	(8.92)**
_Iworkplace_3			-0.368	-0.362
			(10.69)**	(10.55)**
own_private	0.035	-0.048	-0.106	-0.107
	-0.7	-0.87	(4.90)**	(3.30)**
employ_num	-0.217	-0.153	-0.1	-0.103
	(5.35)**	(3.67)**	(5.20)**	(2.76)**
contra	0.053	0.061	0.05	0.056
	-1.31	-1.52	(2.71)**	(2.62)**
job_informal			-0.002	
			-0.11	
Residuals				0.006
				-0.02
Constant	0.299	0.026	0.314	0.326
	-1.17	-0.08	(2.75)**	(2.10)*
Observations	540	390	2180	2199

Table 6 /

R-squared	0.28	0.29	0.35	0.36	
Absolute value of t statistics in parentheses					

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Danahmark	Individual	Total				
Denchinark	characteristics	discrimination				
Agglomeration	19.70%	80.30%				
0.1 percentile	-	-				
0.25 percentile	-	-				
0.5 percentile	27.43%	72.57%				
0.75 percentile	13.51%	86.49%				
0.9 percentile	15.58%	84.42%				
No agglomeration	5.21%	94.79%				
0.1percentile	-	-				
0.25 percentile	-	-				
0.5 percentile	8.34%	91.66%				
0.75 percentile	10.09%	89.91%				
0.9 percentile	5.76%	94.24%				
Weighted	13.61%	86.39%				
Pooled	14.21%	85.79%				

Table 6.5



Figure 5.2



Figure 5.3



Figure 5.4



Figure 5.5



Figure 5.6



Figure 6.1



Figure 6.2



Figure 6.3



Figure 6.4



Figure 6.5