Volume 39, Issue 4

The Impact of Membership of the Communist Party of China on Wages

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Abstract

This paper estimates the impact of membership of the Communist Party of China (CPC) on wage levels. The results indicate that although the wage premium of CPC membership ranges from 4.3% to 32.2%, when job factors are held constant and the selection bias is controlled the impact of CPC membership on wages is not statistically significant. When considering the selection bias although the differentials of human capital contribute to the wage gap between CPC and non-CPC members, the unexplained parts including discrimination against non-CPC members are the main factors which contribute 92.8% to the wage gap.

1. Introduction

Despite the drastic economic transition from a planned system to a market economy the de facto Communist Party of China (CPC) leadership remains dominant in the political sphere because the government has a gradualist economic reform policy. This has contributed a unique character to the Chinese economy.

In both state-owned enterprises (SOEs) and privately-owned enterprises (POEs) a firm must accept management, supervision, and guidance from a CPC liaison organization[1]. Therefore CPC membership may contribute to the wage gap between CPC members and non-CPC members. Empirical studies focusing on the impact of CPC membership on wages are rather limited (Li et al., 2007; Appleton et al., 2009; McLaughlin, 2017). Most empirical studies of Chinese wage determinants use the CPC membership dummy variable as a control variable in wage function and show that CPC membership positively affects the wage level and that the wage premium of CPC membership may persist (Gustafsson and Li 2000; Knight and Song 2003; Appleton, et al. 2005; Bishop et al. 2005; Li et al. 2009; Li et al. 2012; Xing 2014; McLaughlin 2017; Ma 2018a, Ma 2018b; MacDonald and Hasmath 2018; Wang et al. 2018).

Three important issues merit further discussion. Firstly, most previous studies do not address the problem of sample selection bias in wage function. This sample selection bias usually occurs because the probability of gaining CPC membership does not show random distribution[2]. Secondly, empirical studies of the probability of participation in the CPC are scarce and the determinants of CPC membership are not clear. Thirdly, the wage gap between CPC members and non-CPC members may be caused by human capital differentials, or by the wage determinate systems including discrimination against non-CPC members. No published empirical studies focus on the wage gap. As the gradualist economic transition advances the problem of income inequality is increasingly severe. Therefore this study on the wage gap between CPC members and non-CPC members may provide pertinent new evidence.

This study uses three empirical methods to address these limitations. First, this study investigates the determinants that lead to CPC membership. Second, it addresses the sample selection bias problem by using the Heckman two-step model (Heckman, 1979) for wage function. Third, using the Blinder-Oaxaca decomposition model (Blinder, 1973; Oaxaca, 1973; Oaxaca and Choe, 2016), this study investigates how the

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[1] Article 19 of *The Company Law of the People's Republic of China (Revised in 2013)* states: 'In a company, an organization of the Communist Party of China shall be established to carry out the activities of the party in accordance with the charter of the Communist Party of China. The company shall provide the necessary conditions for the activities of the party organization.'

[2] Based on Section 1 Article 1 of the "Constitution", there are conditions allowing membership of the Communist Party of China. Although these five conditions could be met by the majority of Chinese citizens the selection process for membership is arduous and protracted (Hu and Zhou, 1998; Li and Zhang, 2003).

explained part (human capital differentials) and unexplained part (wage system or discrimination) affect the wage gap between CPC members and non-CPC members and addresses the sample selection bias problem.

2. Methodology

2.1 Models

First, to investigate the determinants of membership of the CPC Organization, the

probit regression model is utilized as follows:

$$\Pr(Y_i = 1) = a + \beta_H H_i + \varepsilon_i \tag{1}$$

In equation (1), $\Pr(Y_i = 1)$ is the dependent variable for the probability of gaining membership of the CPC. i represents the individual, H represents factors (e.g. individual characteristics, job, parents in the public sector) which affect the probability of gaining membership of the CPC, β is the estimated coefficient, and ε is a random error item.

Second, the wage functions are estimated in order to estimate the wage premium of CPC members. The wage function for the OLS model is expressed as equations (2.1) and (2.2)[3].

$$lnW_i = a + \beta_{cpc} CPC_i + \beta_X X_i + u_i \tag{2.1}$$

In equation (1.2), lnW is the logarithm value of the average wage, X represents factors (e.g. education, experience years) which may affect wage level, β is the estimated coefficient, and u is a random error item. When β_{cpc} is statistically significant and is a positive value, it indicates that when the other factors (e.g. human capital) are held constant the wage premium of CPC membership remains and the wage level is higher for the CPC member group than for the counterpart.

The Heckman two-step model (Heckman, 1979) is used to address the selection bias problem in the OLS model (workers choose to apply by themselves or are selected by the CPC organization to become CPC members). The estimated results of the distribution function ($\Phi(\cdot)$) and the density function ($\varphi(\cdot)$) are used for the probit regression model. (The dependent variable is $\Pr(Y_i = 1)$ which indicates the probability of becoming a CPC member，see equation (1)). The selection items for CPC members and non-CPC members are calculated ($\lambda=\varphi(\cdot)/\Phi(\cdot)$). The corrected wage function expressed by the equation (2.2) is estimated using these selection items.

$$lnW_i = a + \beta_{cpc} CPC_i + \beta_X X_i + \beta_\lambda \lambda_i + u_i \tag{2.2}$$

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[3] In order to simplify the expression of equations all constant items are omitted.

Third, Blinder-Oaxaca decomposition based on variable means is used to estimate the determinants of the wage gap between CPC members and non-CPC members. With acknowledgements to Blinder (1973), Oaxaca (1973), and Oaxaca and Choe (2016), the decomposition model is expressed as follows[4]:

$$lnW_{cpc} - lnW_{ncpc} = \beta_{cpc}(X_{cpc} - X_{ncpc}) + (\beta_{cpc} - \beta_{ncpc})X_{ncpc}$$

$$+\beta_{cpc}(\lambda_{cpc} - \lambda_{ncpc}) + (\beta_{cpc} - \beta_{ncpc})\lambda_{ncpc} \qquad (3.1)$$

$$lnW_{cpc} - lnW_{ncpc} = \beta_{ncpc}(X_{ncpc} - X_{cpc}) + (\beta_{ncpc} - \beta_{cpc})X_{cpc}$$

$$+\beta_{ncpc}(\lambda_{ncpc} - \lambda_{cpc}) + (\beta_{ncpc} - \beta_{cpc})\lambda_{cpc} \qquad (3.2)$$

X_{cpc} and X_{ncpc} are variable means of CPC members and non-CPC members. β_{cpc} and β_{ncpc} are estimated coefficients.[5]

Based on the human capital theory (Becker, 1964; Mincer, 1974) and discrimination hypothesis (Becker, 1957), the decomposition model decomposes the wage gap between CPC member and non-CPC member into two parts: explained parts $[\beta_{cpc}(X_{cpc} - X_{ncpc}) + \beta_{cpc}(\lambda_{cpc} - \lambda_{ncpc})$ or $\beta_{ncpc}(X_{ncpc} - X_{cpc}) + (\beta_{cpc} - \beta_{ncpc})\lambda_{ncpc}]$ and unexplained parts $([(\beta_{cpc} - \beta_{ncpc})X_{ncpc} + \beta_{ncpc}(\lambda_{ncpc} - \lambda_{cpc})$ or $(\beta_{ncpc} - \beta_{cpc})X_{cpc} + (\beta_{ncpc} - \beta_{cpc})\lambda_{cpc}]$. The explained part expresses the differentials of individual characteristics such as the differences in human capital endowments. The unexplained part includes the differences in wage determination systems, discrimination, or capabilities not at present measurable. The larger the estimated unexplained part is, the greater is the influence of discrimination against the CPC members on the wage gap.

2.2 Data and variable setting

Analysis in this study uses data from the Chinese Household Income Project (CHIPs) survey. The most recent survey data (CHIPs2013) was conducted in 2014 by Beijing Normal University and the National Bureau of Statistics (NBS) of China. The CHIPs2013 includes urban local residents, migrants and rural residents. The proportion of migrant CPC members is low and most workers obtain their wage in urban areas, therefore urban local resident samples are used in this study. The CHIPs2013 includes information about individual and household characteristic factors, job status and wages. Particularly, it gives information about the parents' workplace (public sector or private

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[4] In the Blinder-Oaxaca model (Blinder, 1973; Oaxaca, 1973), the selection item (λ) is not considered.

[5] Debate suggests an index number problem with the Oaxaca-Blinder model. Estimated results may vary with the kind of comparison group used. Given space constraints and because the two sets of decomposition results are almost identical, only estimated results using equation (3.1) are presented in this paper.

sector) which can be used as an identification variable in the Heckman two-step model. The sample of the CHIPs is a part of the samples in the NBS which cover the 15 representative provinces or metropolises including Beijing, Shanxi, Liaoning, Jiangsu, Shandong, Anhui, Guangdong, Henan, Hubei, Hunan, Chongqing, Sichuan, Yunnan, Gansu and Xinjiang in the Eastern, Central and Western Regions of China.

Workers are the analytic objects and the unemployed are excluded. The analytic objects are limited to the ages of between 16 and 59 in order to reduce the effect on the analysis result of the retirement system implemented in the public sector, the SOEs and government organizations[6]. No answer samples, abnormal value samples[7], and the missing value samples are deleted.

The dependent variable setting for the probability function of participation in the CPC organization is a binary category variable: it is equal to 1 when a worker is a CPC member. In the wage function and decomposition model the dependent variable is the logarithm value of the hourly wage. The hourly wage is calculated from wage and work hours. The wage includes the basic wage, bonus, and cash subsidies.

The independent variables are the variables likely to affect the probability of participation in the CPC organization and the wage level: the four independent variables are conducted as follows. First, the education, experience years[8] dummy variables are conducted as the index of human capital. (2) To control the influence of gender disparity, the male dummy variable is constructed[9]. Second, for the job factors, five kinds of occupation and five kinds of industry dummy variables[10] are used to control the occupational and industry sector disparities. The public sector and private sector dummy variables are employed to control the influence of ownership types on wage[11]. Third, to control the regional disparity, Eastern, Central, and Western Region dummy variables are constructed. Fourth, using the information in the CHIPs2013 questionnaire about the workplace of parents, a binary dummy variable of parents working in the public sector is constructed, which is equal to 1 when a worker's parents (father or mother) are working or have worked in the public sector, and equal to 0 for the others.

Table 1 summarizes the descriptive statistics by total sample, CPC member group and non-CPC member group. It can be observed that differentials remain of mean values of variables between these two groups. Large differentials in the proportion of

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[6] The eligible retirement age is 45 for a female worker, 50 for male worker, 55 for a female cadre, 60 for a male cadre.

[7] Variable values are in the range of "mean value±three times S.D." is defined as abnormal value here.

[8] Experience years=age-schooling years-6.

[9] Li and Gustafsson (2000), Demurger, *et al.* (2007) and Ma (2018c) analyze the gender wage gaps based on the decomposition methods and find that in China discrimination against women is the main factor.

[10] The numbers of industry categories are sixteen in the survey for local urban residents in CHIPs 2013, to confirm the analyzed samples, the industrial sectors are reclassified into five kinds.

[11] For empirical studies on the wage gap between public and private sectors in China, please refer to Zhang and Xue (2008), Ye, et al. (2011), Demurger, et al. (2012) and Ma (2018c).

highly educated workers, managers and workers in the public sectors between CPC and non-CPC are shown to remain. For example, the proportion of workers in the public sector is 73.0% for CPC members but 28.8% for non-CPC members. These differentials may affect the wage gap between these two groups. However, there may be reverse causal relations between CPC membership and these factors (i.e. work sector). Firstly, the probability of working in the public sector is higher for CPC members than non-CPC members because the public sector may prefer to recruit CPC members. Secondly, because there are more CPC organizations in the public sector and control of management by CPC organizations is greater in the public sector than in the private sector the probability of becoming a CPC member may be higher for workers in the public sector. Therefore, the sample selection bias problem should be addressed when considering wage functions.

Table1. Description Statistics

	Total		CPC		Non-CPC		Gap=CPC-non-CPC
	Mean	S.E.	Mean	S.E.	Mean	S.E.	
Party	0.189	0.392					
Lnw	2.191	0.784	2.482	0.744	2.123	0.777	0.359
Female	0.440	0.496	0.322	0.467	0.467	0.499	-0.145
Experience year	28.942	11.193	29.344	10.658	28.848	11.313	0.496
Age							
aged16-29	0.168	0.373	0.091	0.288	0.185	0.389	-0.094
aged30-39	0.278	0.448	0.273	0.445	0.279	0.449	-0.006
aged40-49	0.351	0.477	0.360	0.480	0.349	0.477	0.011
aged50-60	0.204	0.403	0.276	0.447	0.187	0.390	0.089
Education							
primary	0.058	0.234	0.004	0.067	0.071	0.257	-0.067
junior high	0.289	0.453	0.092	0.289	0.335	0.472	-0.243
senior high	0.294	0.456	0.231	0.422	0.309	0.462	-0.078
college	0.179	0.383	0.247	0.432	0.163	0.369	0.084
university	0.180	0.384	0.425	0.494	0.122	0.328	0.303
Occupation							
manager/technician	0.225	0.417	0.337	0.473	0.198	0.399	0.139
clerk	0.144	0.351	0.320	0.466	0.103	0.304	0.217
manufacturing	0.200	0.400	0.104	0.305	0.223	0.416	-0.119
service worker	0.301	0.459	0.143	0.350	0.338	0.473	-0.195
other	0.129	0.336	0.096	0.295	0.137	0.344	-0.041

Ownership type							
Public	0.372	0.483	0.730	0.444	0.288	0.453	0.442
COEs	0.045	0.207	0.045	0.208	0.045	0.207	0.000
FOEs	0.028	0.165	0.011	0.104	0.032	0.176	-0.021
POEs	0.256	0.437	0.099	0.299	0.293	0.455	-0.194
Other	0.299	0.458	0.114	0.318	0.342	0.474	-0.228
Industry sector							
construction	0.053	0.225	0.029	0.169	0.059	0.236	-0.030
manufacturing	0.147	0.354	0.098	0.297	0.158	0.365	-0.060
sales	0.197	0.398	0.048	0.213	0.232	0.422	-0.184
service	0.183	0.387	0.131	0.337	0.195	0.396	-0.064
other	0.420	0.494	0.694	0.461	0.356	0.479	0.338
Regions							
Eastern	0.419	0.493	0.424	0.494	0.418	0.493	0.006
Central	0.360	0.480	0.355	0.479	0.361	0.480	-0.006
Western	0.221	0.415	0.221	0.415	0.221	0.415	0.000
Parent in public sector	0.049	0.215	0.101	0.301	0.037	0.188	0.064
Observations	10611		2009		8602		

Source: Calculated based on CHIPs2013.

*Note*s: The age is limited from 16 to 59 years old.

3. Results

3.1 The Determinants of Participation in a CPC Organization

Table 2 reports the determinants of participation in a CPC organization based on the probit regression model. Three kinds of analyses are employed based on the use of the different independent variables. The main findings are as follows.

First, more years of work experience and a higher level of education may increase the likelihood of obtaining membership of the CPC.

Second, the probability of a worker joining the CPC differs for each ownership sector. For example, the probability of becoming a CPC member is 2.4-2.6%, 10.5%, 10.7% lower for the workers in the private sector (e.g. COEs, FOEs, POEs) than for a worker in the public sector.

Third, it should be noted that having parents working in the public sector may positively affect the statistical probability of becoming a CPC member. As is well known, the influence of the CPC is greater in the public sector than in the private sector. When a worker's parents are in the public sector their children may gain access to the CPC more easily, obtain more information about the CPC and derive more political and social capital from their parents, which may increase the probability of the children

of party members joining the CPC. The results suggest intergenerational transmission of CPC membership between parents and their children, which may lead to the intergenerational transmission of social and economic status. Having a parent in the public sector is used as an identification variable to calculate the selection bias and to adjust items in the following estimations.

Table 2. The Results of Probability of Participation into the CPC Organization

	(1)			(2)			(3)		
	dF/dx		z-value	dF/dx		z-value	dF/dx		z-value
Female	-0.077	***	-11.05	-0.073	***	-10.9	-0.073	***	-10.90
Age (aged16-29)									
aged30-39	0.082	***	6.80	0.065	***	5.59	0.065	***	5.60
age40-49	0.156	***	12.93	0.112	***	9.76	0.112	***	9.73
age50-59	0.284	***	18.12	0.206	***	13.87	0.203	***	13.65
Education (primary)									
junior high school	0.188	***	5.40	0.145	***	4.45	0.144	***	4.44
senior high school	0.363	***	9.72	0.264	***	7.57	0.261	***	7.50
college	0.583	***	13.49	0.407	***	9.77	0.404	***	9.71
university	0.752	***	17.82	0.570	***	12.94	0.565	***	12.84
Occupation (manufacturing)									
manager/engineer				0.045	***	3.62	0.044	***	3.54
clerk				0.164	***	10.6	0.162	***	10.48
service worker				0.051	***	3.79	0.050	***	3.73
other				0.057	***	3.85	0.055	*	3.71
Ownership (Public)									
COEs				-0.026	*	-1.83	-0.024	***	-1.67
FOEs				-0.105	***	-7.18	-0.105	***	-7.12
POEs				-0.107	***	-13	-0.107	***	-12.89
Other				-0.078	***	-8.32	-0.076	*	-8.14
Industry sector (manufacturing)									
construction				-0.028	*	-1.63	-0.028	***	-1.63
sales				-0.077	***	-5.8	-0.077		-5.79
service				-0.018		-1.36	-0.018		-1.38
other				0.006		0.52	0.005	***	0.39
Region (Western region)									
Central	0.023	***	2.89	0.002		0.33	0.002	**	0.27
Western	0.038	***	3.96	0.022	**	2.49	0.022	***	2.47
Parents in public sector							0.066	***	4.37
observations	10611			10611			10611		
Pseudo R2	0.191			0.254			0.259		

| Log likelihood | -4214.058 | -3884.150 | -3860.729 |

3.2 Wage Premium of CPC Membership

The wage functions are used to investigate the wage premium of CPC membership. Estimation 1 is based on the OLS model. Estimation 2 uses the Heckman two-step model to address the sample selection bias problem. The results are summarized in Table 3. Four kinds of analyses are employed using different independent variables. The main findings are as follows.

First, based on the results in Estimation 1 (OLS), when other conditions are not controlled (Model 1), the wage premium of CPC membership is 32.2% and is statistically significant at the 1% level (Model 1). When the individual characteristics (education, experience year, gender) are controlled the wage premium of CPC membership decreases greatly to 4.3% and at the 5% level is statistically significant (Model 2). Two issues in these results merit scrutiny. Firstly, the analyses based on wage function are employed on the assumption that the education and work sector are held constant, but in fact, as is shown in Table 1, large differentials of these factors between CPC and non-CPC remain. Therefore decomposition analyses on each factor should be employed. The decomposition results are shown in section 3.3.

Secondly, why do workers endure the demanding process necessary to obtain membership of the CPC even though when the human capital and work sector are held constant, the wage gap between CPC and non-CPC membership is small?

Three reasons for the effort made to join the CPC may be considered. First, it may be caused by different political ideologies (i.e. socialism, communism) among workers. Second, from the economics perspective, it is expected that the probability of working in the public sector and of becoming a manager is higher for a CPC member than for a non-CPC member. It is thought the social economic status (SES) is higher for an employee in the public sector or a manager. Those who can obtain this higher social economic position have more chance of promotion, of a higher income, of lifetime employment, of better social security provision and of more social capitals such as more connections with the other CPC members and CPC organizations. These monetary factors and non-monetary factors may motivate efforts to join CPC organizations. To test the hypothesis this study employs an analysis using the CHIPs2013 data. Although reverse causal relations may remain the results show that the probabilities of working in the public sector and of becoming a manager in the public sector are higher for CPC members than for those without CPC membership.[12]

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[12] The results of marginal effects(dF/dx) based on the probit regression model show that when human capital (education, experience years), gender, marital status and regions are held constant, the probabilities of working in the public sector (i.e. government organization, SOEs) are 43.8 (Model1), and 26.4 (Model2) percentage points higher for CPC members than non-CPC members (see Appendix Table3); the probabilities of becoming a manager in the public sector is 4.0 (Model1), and 1.8 (Model1) percentage points higher for CPC members than non-CPC members, while the

Third, the wages including basic wage, bonus and allowance which are reported in the survey are analyzed. It is well known by those working in this academic field that some parts of income such as the income from corruption cannot be measured and this may cause the income gap between those with CPC membership and those without CPC membership to be underestimated.[13]

Second, based on the results in Estimation 2 (Heckman two-step model), when the sample selection bias is adjusted, the wage premium of CPC membership is not statistically significant for all models and the coefficients of selection items are statistically significant at the 1% level in Model 1 and Model 2. The results show that a sample selection bias problem remains in the results for Estimation 1. Therefore it is necessary to consider the bias in the estimations of wage function and wage decomposition.

Table 3. Wage Premium of CPC Membership

		(1)		(2)		(3)	(4)
[Estimation1]	CPC	0.322	***	0.043	**	0.023	0.023
（OLS）		17.18		2.22		1.20	1.14
[Estimation2]	CPC	0.020		0.025		0.025	0.024
（Heckman two step		0.97		1.20		1.23	1.21
	selection item	0.760	***	0.124	***	-0.013	-0.035
		28.89		3.00		-0.25	-0.48

Note. *,**,***: statistical significant levels are10%, 5%, 1%. Model (1): the independent variable is only the CPC member dummy variable; Model (2): the independent variables include the CPC member dummy variable, female, experience years and education; Model (3): the independent variables include the CPC member dummy variable, female, experience years and education, occupation, industry sector and regions; Model (4): the independent variables include the CPC member dummy variable, female, experience years and education, occupation, industry sector and regions and parents in the public sector.

3.3 The Decomposition Results of Wage Gap Between CPC and Non-CPC Members

Table 4 reports the decomposition results of wage gaps between CPC members and non-CPC members. Two kinds of decomposition analyses are employed. Model 1 is a decomposition analysis excluding the selection items based on the wage function for the OLS model (Blinder, 1973; Oaxaca, 1973), Model 2 is a decomposition analysis excluding the selection items based on the wage function by the Heckman two-step model (Oaxaca and Choe, 2016). A summary of the results follows.

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influence of CPC membership on the probability of becoming a manager is not statistically significant for the private sector (see Appendix Table4).

[13] For recent studies on the corruption of CPC members please refer to Liu, Luo and Tian (2016), Xu and Yano (2017) and Kim, Li and Tarzia (2018).

Table 4. Decomposition Results of Wage Gap between CPC and Non-CPC

	values		%	
	explained	unexplained	explained	unexplained
[Estimation1: excluding selection item]				
Total	0.354	0.006	98.3%	1.7%
female	0.030	0.020	8.3%	5.6%
experience year	0.008	-0.150	2.2%	-41.7%
education	0.199	0.044	55.3%	12.2%
occupation	0.052	-0.007	14.4%	-1.9%
industry	0.000	-0.087	0.0%	-24.2%
ownership	0.062	-0.094	17.2%	-26.1%
region	0.003	-0.120	0.8%	-33.3%
constants	0.000	0.400	0.0%	111.1%
[Estimation2: including selection item]				
Total	0.026	0.333	7.2%	92.8%
selection	-0.235	0.611	-65.5%	170.2%
female	0.025	0.019	7.0%	5.3%
experience year	0.006	-0.164	1.7%	-45.7%
education	0.155	0.120	43.2%	33.4%
occupation	0.040	-0.004	11.1%	-1.1%
industry	0.041	-0.100	11.4%	-27.9%
ownership	-0.008	-0.094	-2.2%	-26.2%
region	0.002	-0.119	0.6%	-33.1%
constants	0.000	0.064	0.0%	17.8%

Note. Estimation1 based on Blinder- Oaxaca model (Blinder, 1973; Oaxaca 1973); Estimation 2 based on Oaxaca and Choe model (Oaxaca and Choe, 2016).

First, in general the results of Model 1 and Model 2 are different. The results from Model 1 indicate the influence of the explained part (98.3%) on wage gap is greater than the unexplained part (1.7%), but according to the Model 2 results, the influence of the unexplained part (92.8%) on wage gap is greater than the explained part (7.2%). Notably, the unexplained part of the selection item is 170.2% which is the largest among these factors. It suggests that the factors which determine the probability of joining the CPC, and some unobserved factors which are not controlled in the study such as unobserved ability may influence the probability of becoming a CPC member and greatly affect the wage gap. Therefore the selection bias should be analyzed.

Second, the results for the detailed decomposition (1) indicate that the differentials

of educational level enlarge the wage gap (55.3% in Model 1, 43.2% in Model 2). It is clear that the differentials of human capital between CPC members and non-CPC members contribute to the wage gap. The value of the unexplained part of the educational level is greater for the CPC member group (12.2% in Model 1, 33.4% in Model 2). It is shown that the return of education on wage is greater for the CPC member group than the non-CPC member group. This may increase the wage gap between these two groups. (2) The differentials of proportions of females who are workers may increase the wage gap to 8.3% for Model 1 and 7.0% in Model 2. When the proportion of female workers is higher for the non-CPC member group, the average wage may be lower for the non-CPC member group than for the counterpart. This may contribute to the wage gap between CPC and non-CPC member groups. Although gender equality employment policies were implemented in China and female employment in the public sector was greatly promoted by the government (Meng, 2000; Ma, 2018b, c), the proportion of female members in the CPC remains less than male members (Ma and Iwasaki, 2019). (3) The differentials of occupational distributions between these two groups may contribute to the wage gap widening to 14.4% in Model 1 and to 11.1% in Model 2. The differentials of industry sector distributions between these two groups also contributes to expand the wage gap to 11.4% in Model 2. (4) For the ownership of enterprises, the differentials of distribution of ownership types contributes to enlarge the wage gap to 17.2% in Model 1. The influence of the sample selection bias decreased to -2.2% in Model 2. It indicates that the ownership sector may influence the probability of participation in the CPC organization, thus the ownership effect on wage gap is absorbed by the selection item.

4. Conclusions

This paper estimates the impact of membership of the Communist Party of China on wage levels, examines the determinants of participation in the CPC organization and investigates the determinants of the wage gap between CPC members and non-CPC members in China. It uses data from the Chinese Household Income Project (CHIP) survey for 2014 and an empirical study based on wage function to examine the sample selection bias (Heckman, 1979), probit regression model, and the Blinder-Oaxaca decomposition method (Blinder, 1973; Oaxaca, 1973; Oaxaca and Choe, 2016).

Three new findings emerge. Firstly, the wage premium of CPC membership is 32.2% when the other conditions are not controlled. When individual characteristics (i.e. education, experience year, gender) are controlled, the wage premium of CPC membership greatly decreases to 4.4%. When individual characteristics and job factors (e.g. occupation, ownership sector) are held constant, and when the sample selection bias is controlled, the effect of CPC membership on wage levels is not statistically

significant.

Secondly, the probability of membership of a CPC organization is higher for a male worker, a worker with a high educational level and with more years of work experience and for a clerical worker than for others. Notably, having parents working or who have worked in the public sector may increase the probability of their children becoming a CPC member. Thirdly, in relation to sample selection bias, the differentials of human capital contribute to the wage gap but the unexplained parts including discrimination against non-CPC members are the main factors which contribute 92.8% to the wage gap.

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Appendix Table1. Results of Wage Functions of CPC and non-CPC (OLS)

	(1) CPC			(2) Non-CP			(3) Gap
	coeff.		t-value	coeff.		t-value	
Female	-0.208	***	-6.42	-0.252	***	-16.03	0.044
Experience	0.025	***	3.39	0.043	***	12.61	-0.018
Exp.-squared	0.000	**	-2.26	-0.001	***	-11.77	0.001
Education (primary)							
junior high	0.057		0.25	0.036		1.08	0.021
senior high	0.297		1.33	0.189	***	5.37	0.108
college	0.447	**	1.99	0.414	***	10.28	0.033
university	0.654	***	2.89	0.658	***	14.92	-0.004
Occupation(manufacturing)							
manager/engineer	0.130	**	2.22	0.137	***	5.09	-0.007
clerk	0.010		0.16	0.013		0.42	-0.003
service worker	-0.140	**	-2.06	-0.126	***	-4.80	-0.014
other worker	-0.102		-1.47	-0.119	***	-4.17	0.017
Ownership (public)							
COEs	-0.284	***	-3.81	-0.001		-0.02	-0.283
FOEs	0.306	**	2.12	0.266	***	5.71	0.04
POEs	-0.139	**	-2.52	-0.017		-0.75	-0.122
Other	-0.184	***	-3.34	-0.047	**	-1.99	-0.137
Industry sector (manufacturing)							
construction	-0.020		-0.20	0.253	***	6.74	-0.273
sales	-0.044		-0.50	0.019		0.61	-0.063
service	-0.079		-1.17	-0.002		-0.06	-0.077
other	-0.041		-0.72	0.080	***	2.99	-0.121
Region (Western Region)							
Central	-0.399	***	-11.78	-0.168	***	-9.52	-0.231
Western	-0.306	***	-7.84	-0.143	***	-7.00	-0.163
Constants	1.916	***	7.56	1.517	***	23.60	0.399
observations	2009			8602			
Adj R-squared	0.224			0.237			

Notes: *,**,***: statistical significant levels are10%, 5%, 1%. Gap = CPC-Non-CPC.

Appendix Table 2. Results of Wage Functions of CPC and non-CPC
(Heckman two-step model)

	(1) CPC			(2) Non-CPC			(3) Gap
	coeff.		t-value	coeff.		t-value	
Female	-0.171	***	-4.05	-0.212	***	-7.85	0.041
Experience	0.020	**	2.42	0.040	***	9.98	-0.020
Exp.-squred	0.000	*	-1.80	-0.001	***	-11.20	0.001
Education (primary)							
junor high	0.044		0.20	-0.045		-0.81	0.089
senior high	0.248		1.10	0.054		0.66	0.194
college	0.362		1.56	0.236	**	2.26	0.126
university	0.510	**	2.06	0.430	***	3.29	0.080
Occupation (manusfacturing)							
manager/engineer	0.112	*	1.89	0.116	***	3.94	-0.004
clerk	-0.059		-0.78	-0.050		-1.06	-0.009
service worker	-0.162	**	-2.34	-0.149	***	-5.04	-0.013
other worker	-0.129	*	-1.81	-0.143	***	-4.44	0.014
Ownership(public)							
COEs	-0.267	***	-3.52	0.011		0.28	-0.278
FOEs	0.392	**	2.51	0.360	***	5.17	0.032
POEs	-0.085		-1.26	0.050		1.17	-0.135
Other	-0.146	**	-2.39	-0.004		-0.12	-0.142
Industry sector (manufacturing)							
construction	-0.011		-0.11	0.270	***	7.01	-0.281
sales	-0.012		-0.14	0.070	*	1.68	-0.082
service	-0.070		-1.03	0.007		0.24	-0.077
other	-0.045		-0.78	0.077	***	2.88	-0.122
Region(western region)							
central	-0.400	***	-11.78	-0.169	***	-9.58	-0.231
western	-0.317	***	-7.98	-0.155	***	-7.25	-0.162
Selection item	0.198		1.42	-0.132	*	-1.84	0.330
Constants	1.992	***	7.69	1.928	***	8.28	0.064
observations	2009			8602			
Adj R-squared	0.225			0.187			

Notes: *,**,***: statistical significant levels are10%, 5%, 1%. Gap = CPC-Non-CPC.

Appendix Table3. Results of Probability of Working in Public Sector

	(1)			(2)		
	dF/dx		z-value	dF/dx		z-value
Party	0.438	***	35.13	0.264	***	18.78
Female	-0.023	**	-2.40	-0.024	***	-2.32
Married	0.033	**	2.01	-0.017		-1.00
Experience	0.006	**	2.34	0.017	***	6.69
Exp.-squared	0.000	***	-3.90	0.000	***	-3.44
Education (primary)						
junior high				0.189	***	6.22
senior high				0.416	***	13.68
college				0.604	***	19.95
university				0.716	***	25.21
Region (western region)						
central	0.121	***	11.00	0.173	***	14.83
western	0.038	***	3.00	0.102	***	7.48
observations	10611			10611		
Pseudo R2	0.219			0.219		
Log likelihood	-5651.350			-5651.350		

Notes: *,**,***: statistical significant levels are10%, 5%, 1%. Probit regression model is used. Analyzed samples are working individuals. Public sector includes the government organizations and SOEs.

Appendix Table4. Results of Probability of Becoming a Manager

(A) Public sector

	(1)			(2)		
	dF/dx		z-value	dF/dx		z-value
Party	0.040	***	5.30	0.018	***	2.70
Female	-0.013	*	-1.74	-0.010		-1.58
Married	0.009		0.63	0.007		0.54
Experience	0.004	*	1.88	0.002		1.30
Exp.-squared	0.000		-1.16	0.000		0.14
Education (primary)						
junior high				0.974	***	16.28
senior high				0.957	***	17.70
college				0.977	***	19.20
university				0.955	***	20.76
Region (western region)						
central	-0.027	***	-3.71	-0.018	***	-2.70
western	-0.024	***	-2.97	-0.016	**	-2.24
observations	4053			4053		
Pseudo R2	0.049			0.075		
Log likelihood	-853.721			-830.443		

(B) Private sector

	(1)			(2)		
	dF/dx		z-value	dF/dx		z-value
Party	0.007		0.79	-0.002		-0.31
Female	-0.010	**	-2.12	-0.009	**	-1.91
Married	0.010		1.38	0.008		1.02
Experience	0.001		1.12	0.002	*	1.66
Exp.-squared	0.000		-1.34	0.000		-1.39
Education (primary)						
junior high				0.005		0.51
senior high				0.030	**	2.48
college				0.042	***	2.68
university				0.054	***	2.95
Region (western region)						
central	-0.015	***	-3.16	-0.014	***	-2.84
western	-0.030	***	-5.47	-0.028	***	-5.05
observations	6558			6558		

Pseudo R2	0.020	0.030
Log likelihood	-1168.379	-1155.937

Notes: *,**,***: statistical significant levels are 10%, 5%, 1%. Probit regression model is used. The public sector includes the government organizations and the state-owned enterprises; the private sector includes the privately-owned enterprises, the foreign owned enterprises, the collectively owned enterprises and the other types such as the individual business unit with employees less than 7.