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Economic Transition and Wage Gap Between Communist Party Members and Nonmembers in China *

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Abstract

Using the data from the Chinese Household Income Project Survey, this study investigates the influence of membership in the Communist Party of China (CPC) on wage levels during the 2000s, and the determinants of wage gaps between CPC members and nonmembers. We apply the wage function estimations considering the sample selection bias and use three decomposition methods. Three new findings emerge. First, the probability of joining a CPC organization is higher for a male worker, a well-educated worker, and a worker with parents who are CPC members: there is an inheritance of CPC membership in China. Second, the wage premium of CPC membership differs by models, which indicates that the selection bias may affect the wage premium greatly. Third, the contribution rate of the explained component including human capital on wage gap is larger than that of the unexplained component, and it became larger from 2002 to 2013. When the sample selection bias is addressed, the main factor is the explained part in 2002, while it is the unexplained part in 2013. It is indicated that as the economic transition advanced, discrimination against CPC nonmembers and factors that determine the probability of gaining CPC membership such as the inheritance of CPC membership grew in influence and contributed even further to the expansion of the wage gap.

Keywords: membership of CPC, wage premium, wage gap, decomposition method, China
JEL classification: D43, P21, J31, J43, J71

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1. Introduction

A de facto leadership, such as the Communist Party of China (CPC), remains dominant in the political sphere despite the drastic transition from a planned economic system to a market economy. The reason is that the government has a gradualist economic reform policy.[1] In state-owned enterprises (SOEs) and privately-owned enterprises (POEs), a firm must accept management, supervision, and guidance from a CPC organization.[2] This phenomenon has contributed to the unique character of the Chinese economy.

This study focuses on the impact of CPC membership on wage levels in China. The study's original contributions can be summarized as follows. First, unlike other transition economies, such as in Russia and Eastern Europe, the Chinese government enforces a gradual reform without losing control of society and the economy. Therefore, the influence of the CPC organization on corporate governance and management is even greater presently. For example, the appointment of corporate chief executive officers and the chair or director of a board is generally controlled by the government through CPC organizations in the SOEs. How, then, does CPC membership affect wage levels? This issue is vital in the field of transition economics. However, most previous studies employed wage functions based on neoclassical economics (i.e., the human capital theory) to examine the wage determination mechanism. Moreover, few studies directly investigated the impact of CPC membership on wage levels (Li et al. 2007; Appleton et al. 2009; McLaughlin 2017; Yan 2019; Ma and Iwasaki 2019).[3] Thus, the current study develops a debate in this neglected area. Second, this study is the first to examine the wage gap between CPC members and nonmembers using a set of decomposition models to estimate the contributions to the wage gap of the explained (differences in human capital) and unexplained (discrimination against a CPC nonmember, unobservable ability) parts separately. The problem of income inequality becomes increasingly severe in China as the gradualist economic transition advances (Li et al. 2017). Therefore, the scrutiny of the wage gap between CPC members and nonmembers usefully contributes to the debate about income inequality issues. Third, most previous empirical studies of Chinese wage determinants used a CPC membership dummy variable as a control variable in wage function. They indicated that CPC membership positively affects the wage level (Gustafsson and Li 2000; MacDonald and Hasmath 2018; Yan 2019; Appendix Table A1). Published empirical studies about the probability of people's participation in CPC organizations, its influences on the wage premium of CPC membership, and the wage gap between CPC members and

[1] The economic transition pattern is distinguished by radicalism (shock therapy, the big bang approach) in Russia and Central and Eastern European countries but by gradualism in China (Lipton and Sachs 1990; Balcerowicz 1994; Liew 1995; Sonin 2013; and Shleifer and Treisman 2014).

[2] 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."

nonmembers are limited.[3] Thus, the present study conducts robustness checks to address the sample selection bias. Fourth, this study uses the latest survey data to provide up-to-date and original evidence.

Three new findings emerged as follows. First, the probability of gaining CPC membership is higher for a male worker, a well-educated worker, a worker in the public sector, the older generation, and a worker with parents in the public sector or CPC organizations. Second, when the endogeneity problem is not addressed, the wage premium of CPC membership ranges from 7.6% to 37.4% for 2002 and from 4.4% to 31.8% for 2013. Moreover, when the endogeneity problem is addressed, the wage premium of CPC membership is from 15.4% to 41.8% for 2002 and from 10.2% to 31.8% for 2013. Third, when the selection bias is not considered, the explained part, including the difference in endowment, is the main factor contributing from 66.2% to 85.0% for 2002 and from 91.01% to 95.3% for 2013 to the wage gap between CPC members and nonmembers. However, when the selection bias is addressed, the explained part is also the main factor contributing 51.6% to the wage gap in 2003. In 2013, the unexplained part, including discrimination against CPC nonmembers, is the main factor that contributes 156.5% to the wage gap. The results indicate that, as the transition of the economic system advances, the observable and unobservable factors that determine the probability of gaining CPC membership contribute to the wage gap. Furthermore, their influence increased from 2002 to 2013.

The remainder of this paper is structured as follows. Section 2 explains CPC membership in China to provide a relevant context. Section 3 summarizes the published debate about the economic theory and hypotheses relevant to the wage gap between CPC members and nonmembers. This section also evaluates the results of published empirical studies. Then, Section 4 introduces the study's methodology, including the models, data, and variables used. Section 5 reports and analyzes the results. Finally, Section 6 summarizes the conclusions.

2. Institutional Background: The Communist Party in China

2.1 Organization of the Communist Party of China

Since 1949, the CPC has been the dominant political party and has led the national organization of China. The Chinese Constitution stipulates that "China is led by the Communist Party of China." According to Article 29 of the *Constitution of the Communist Party of China* (hereinafter abbreviated as the *Constitution*), from the highest to the lowest position, the CPC is constructed on six levels like a pyramid: (1) a general secretary who is the supreme leader of the CPC organization; (2) seven members of the Political Bureau of Central Committee; (3) 25 members of the political affairs bureau; (4) a Central

[3] Ma and Iwasaki (2021) used meta-analysis methods to investigate the wage premium of CPC membership in China, but they did not analyze the wage gap between CPC members and nonmembers.

Committee, currently composed of 205 full members and 171 alternate members; (5) approximately 2,000 representatives of the CPC conference; and (6) most numerous and ubiquitous CPC members and primary party organizations. China's Xinhua News Network Corporation reported that the number of CPC members by the end of 2016 was 89.447 million. This report means that approximately seven of every one hundred Chinese citizens (1.4 billion) are CPC members. Moreover, the number of primary party organizations was 451.8 million. In China, primary party organizations are found in most workplaces and communities.

CPC members can be thought of as elite. Based on the data above, the proportion of well-educated CP members[4] is 45.9% or 410.31 million workers. The proportion of CP members working as technicians or engineers in government organizations or firms in the private sector is 15.44%. In rural regions, 548,000 CPC secretaries are leaders in primary party organizations, and 47.2% of them are judged to be contributors to the local economic growth in the area. Among the 54,000 CPC secretaries in urban communities, the proportion of highly educated members is 56.7%. Therefore, the majority of CPC members are well-educated and play leading roles in rural and urban regions. Li and Walder (2001) pointed out that, as the marketization of economic systems advanced during the economic transition period, CPC organizations recruited individuals with high ability and loyalty to strengthen their governing power.

2.2 Role of the Communist Party in Chinese Firms

Article 19 of *The Company Law of the People's Republic of China*, revised in 2013, states that, regardless of the type of ownership, "firms must establish the party organization, and provide the necessary conditions for the activities of the CPC organization." According to the *Notice for the Party Organization in Enterprises* established by the Central Committee of the CPC and the Ministry of Finance, if the fees of CPC members are not sufficient, then a firm must provide financial support to the CPC organization within the firm. The firm must accept management, supervision, and guidance from the CPC organization.

CPC organizations continue to control firms in the public sector as they did during the planned economy period. For the private sector (e.g., POEs), Item 3 of Article 32 of the *Constitution* states that "CPC organizations should comply with the government laws and regulations thoroughly; guide and monitor the firm to comply with these laws and regulations; guide the popular organizations such as the trade unions and the Chinese Communist Youth Association; unite the workers, maintain and protect interests of workers; and promote the better performance of firms." CPC organizations continue to control the management of firms even as market-oriented reform progresses. CPC membership is a sign of an influential role in firms in the public and private sectors.

In sum, during the economic transition period, the human capital (educational attainment level) of most CPC members is higher than average. In addition, the selection process for becoming a CPC member

[4] Here, the well-educated group includes those with an educational level of college graduate or higher.

is rigorous and lengthy, and the CPC controls the management of SOEs. Thus, CPC membership may create a wage premium.

Three critical questions arise. When other factors (i.e., education) are constant, does CPC membership affect wage levels in China? Which factors determine the probability of gaining CPC membership? What are the main factors contributing to the wage gap between CPC members and nonmembers? An empirical study is conducted to address these questions.

3. Literature Review

3.1 Theory and Hypotheses for the Wage Premium of CPC Membership

Five main hypotheses are currently in theoretical debate about the influence of CPC membership on wages (Ma and Iwasaki 2021).

First, according to the human capital theory (Becker 1964; Mincer 1974), an individual's ability to become a CPC member can be thought of as a kind of human capital that includes organizational ability, collective control capability, job motivation, and non-cognitive social ability. Considering that CPC members have higher human capital (a higher education level) than nonmembers, the wage level of CPC members is higher (the human capital effect).

Second, according to the signaling hypothesis, CPC party membership may operate as a signal of higher ability and loyalty (the signaling effect).

Third, unlike CPC nonmembers, members can use party organizations and connections to obtain economic benefits (Bian 1994, 1997; McLaughlin 2017). CPC membership can be regarded as a sort of political and social capital (the political and social capital effect).

Fourth, with the progress of market-oriented economic reform and the separation of the political and economic systems, the characteristics of CPC members, notably their belief in Marxist ideology and loyalty to the CPC organization, may become harmful factors for company management espousing profit and market principles (the marketization hypothesis).

Fifth, as gradualist economic reforms continue, corruption and other income-seeking activities by CPC members have become increasingly apparent since the 1990s. This problem may not only negatively affect economic growth but also create dissatisfaction with and distrust of the party and hinder its control of the state. Therefore, since 2012, the Xi Jinping government has enforced an anti-corruption campaign in China[5] to eradicate the negative reputation caused by corruption and legal problems among CPC

[5] The anti-corruption campaign deployed in China is expressed as "anti-corruption and to promote integrity," which is a government compliance initiative to solve problems by eradicating corruption and enforcing integrity (to clean up government activity). Since 2013, the Xi Jinping government has promoted an anti-corruption campaign with the slogan: "both tiger (high-position CPC members and bureaucrats) and flies (low-position CPC members and bureaucrats) will be hit." The Central Commission for Discipline Inspection has continued, according to its own most

members. The reason is that party leaders are very concerned about people's negative attitudes toward CPC members and organizations. From 2012 to 2017, approximately 1,537,000 party members were sanctioned because of legal violations, and approximately 58,000 were put on trial.[6] Revelations about the extent of corruption in CPC organizations and graft by CPC members may increase social criticism and popular antipathy (the negative rumor hypothesis).

According to the human capital effect, the signaling effect, and the political and social capital effect, CPC membership positively affects wage levels. By contrast, according to the marketization hypothesis and the negative rumor hypothesis, CPC membership may negatively affect the wage levels of members. The direction of the impact of party membership on wage levels in China cannot be predicted from economic hypotheses because they contradict each other. An empirical study is necessary.

3.2 Results of Previous Empirical Studies

Similar to the theoretical debate outlined above, the results of published empirical analyses are inconclusive (**Appendix Table A1**). Most empirical studies used the CPC membership dummy variable as a control variable in wage function and showed that CPC membership positively affects the wage level (e.g., Gustafsson and Li 2000; Ma 2018a; Wang and Lien 2018; MacDonald and Hasmath 2018; Yan 2019). By contrast, a set of studies, such as Li (2003), Li et al. (2007), Gao and Smyth (2010a), Li et al. (2012), Xing (2014), Mishra and Smyth(2015), Wang, Milner, and Scheffel (2017), McLaughlin (2017), and Ma (2018a), reported that the effect of party membership on wages is not statistically significant. The mixed results in previous studies may come from using the different econometric methods and survey data. Li et al. (2007) and McLaughlin (2017) argued that the influence of CPC membership on wage levels might be overestimated as a result of faulty methodology, which lacks a compelling empirical study.

For the methods of estimation of wage premium of CPC membership, most previous studies use the ordinary least squares regression (OLS) model or quantile regression (QR) model to estimate the wage premium of CPC membership. A few studies addressed the heterogeneity problem using a fixed-effects model (Appleton et al. 2005; Li et al. 2007). Some studies addressed the selection bias problem using a selection-adjusted wage function, such as a Heckman two-step model or a Maddala model (Yueh 2004; Appleton et al. 2009; Ma 2018a). Few studies have used the instrumental variables (IV) method to address the endogeneity problem (Mishra and Smyth 2015; McLaughlin 2017). Therefore, the wage premium of CPC membership should be examined with effective checks on the robustness of the results.

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recent figures, sweeping up some 2 million officials of high and low rank—or as Xi Jinping put it in a memorable phrase, both "tigers and flies." According to the official released numbers, the pace of the investigations has been climbing steadily: 172,000 in 2013, 330,000 in 2015, 527,000 in 2017, and 302,000 in just the first half of 2019 (http://www.chinafile.com/ infographics/visualizing-chinas-anti-corruption-campaign). Accessed December 20, 2021.

[6] This campaign was announced at the 19th National Congress of the Communist Party of China in 2017.

Studies have empirically examined the wage premium of CPC membership. However, three important issues merit further discussion. First, empirical studies of the probability of participation in the CPC are scarce, and the determinants of gaining CPC membership are unclear. The current study is the first to focus on the issue and investigate the intergeneration transformation of CPC membership.

Second, most previous studies did not address the sample selection bias in wage function. Therefore, an estimation bias may remain in these results. For example, a sample selection bias should be considered because the probability of gaining CPC membership does not show a random distribution.[7] This study uses a selection correction model (Lee, 1983) to address the problem.

Third, the empirical study focusing on the wage gap between CPC members and nonmembers is scarce, except for Ma (2019). However, Ma (2019) did not perform the decomposition analysis considering the selection bias. The main factors contributing to the wage gap between these two groups are unclear. Hence, the current study investigates the determinants that lead to CPC membership and uses a set of methods to address the sample selection bias in the wage function. Using three decomposition models (the Blinder–Oaxaca model, the Oaxaca–Ransom model, and the Oaxaca–Choe model), this study investigates how the explained (differences in human capital) and unexplained (discrimination against CPC members, unobservable ability) parts contribute to the wage gap. We used the Oaxaca–Choe model on the issue for the first time. The results can provide valuable new evidence on the issue.

4. Methodology

4.1 Models

First, the probit regression model is utilized to investigate the determinants of joining a CPC organization.

$$\Pr\left(CPC_i = 1\right) = a + \beta_H H_i + \varepsilon_i, \tag{1}$$

where $\Pr\left(CPC_i = 1\right)$ is the dependent variable for the probability of joining a CPC organization. i represents individuals, H represents factors (e.g., education) that affect the probability of joining a CPC organization, β is the estimated coefficient, and ε is a random error item.

Second, the wage functions are estimated to estimate the wage premium of CPC membership. The wage

[7] According to Section 1 Article 1 of the Constitution, five conditions exist for the membership in the Communist Party of China. These five conditions could be met by the majority of Chinese citizens, but the selection process for membership is arduous and protracted (Hu and Zhou 1998; Li and Zhang 2003).

function for the OLS model is expressed as follows:

$$lnW_i = a + \beta_{cpc} CPC_i + \beta_X X_i + u_i. \quad (2)$$

As the selection bias may persist in the OLS model (workers choose to apply by themselves or are selected by the CPC organization to become CPC members), the Lee model (Lee 1983) is used. The estimated results of the distribution function (Φ(・)) and the density function (φ(・)) are used for the probit regression model. The dependent variable indicates the probability of becoming a CPC member (Eq. (1)). The selection correction items for CPC members and nonmembers are calculated as (δ = φ(・) / Φ(・)). The corrected wage function is expressed by Eq. (3). Parents with a CPC membership dummy variable are used as an identification variable.

$$lnW_i = a + \beta_{cpc} CPC_i + \beta_X X_i + \beta_\delta \delta_i + u_i \quad (3)$$

The QR model is used to investigate the wage premium of CPC membership through wage distributions from 10 to 90 percentiles, which is expressed as follows:

$$\max_{x(\theta)} \left[\sum_{h:lnW_{i \geq \beta(\theta)H_i}} \theta | lnW_i - \beta(\theta)H_i \right| + \sum_{h:lnW_{i \geq \beta(\theta)H_i}} (1-\theta) | lnW_i - \beta(\theta)H_i \Big| \Big]$$

$$\rho(\theta) \in (0,1) \quad (4)$$

In Eqs. (2)–(4), lnW is the logarithm value of the average wage, CPC is the CPC member dummy variable, X represents factors (e.g., education, years of experience) which may affect wage level, H includes CPC and X, θ represents quantile of wages (10% quantile is expressed as 10th), and $\rho(\theta)$ is a check (or indicator) function. The QR model is designed for estimation using the optimal method, which minimizes the two error terms in the equation. β expresses the estimated coefficient, and u is a random error item. When β_{cpc} is statistically significant and positive, the wage premium of CPC membership remains, and the wage level is higher for the CPC member group than for its counterpart when other factors (e.g., human capital) are held constant.

Third, three kinds of decomposition model—(i) the Blinder–Oaxaca decomposition model; (ii) the Oaxaca–Ransom decomposition model, and (iii) the Oaxaca–Choe decomposition model—are used to investigate the contributions of the explained and unexplained parts to the wage gap separately as follows.

The Blinder–Oaxaca decomposition model (Blinder, 1973; Oaxaca, 1973), based on variable means,

is expressed as follows:[8].[9]

$$\overline{lnW}_{cpc} - \overline{lnW}_{ncpc} = \beta_{\text{cpc}}(\bar{X}_{cpc} - \bar{X}_{ncpc}) + (\beta_{\text{cpc}} - \beta_{\text{ncpc}})\,\bar{X}_{ncpc} \quad (5)$$

$$\overline{lnW}_{cpc} - \overline{lnW}_{ncpc} = \beta_{\text{ncpc}}(\bar{X}_{ncpc} - \bar{X}_{cpc}) + (\beta_{\text{ncpc}} - \beta_{\text{cpc}})\,\bar{X}_{cpc} \quad (6)$$

In Eqs. (5) and (6), $\bar{X}_{cpc}$ and $\bar{X}_{ncpc}$ are variable means of CPC members and nonmembers, respectively. β_{cpc} and β_{ncpc} are estimated coefficients in wage functions. Based on the human capital theory (Becker 1964; Mincer 1974) and the discrimination hypothesis (Becker 1957), the decomposition model decomposes the wage gap between CPC members and nonmembers into two parts: the endowment (known as "the explained part") [$\beta_{\text{cpc}}(\bar{X}_{cpc} - \bar{X}_{ncpc})$ or $\beta_{\text{ncpc}}(\bar{X}_{ncpc} - \bar{X}_{cpc})$] and the endowment return (known as the "unexplained part") [$(\beta_{\text{cpc}} - \beta_{\text{ncpc}})\,\bar{X}_{ncpc}$ or $(\beta_{\text{ncpc}} - \beta_{\text{cpc}})\,\bar{X}_{cpc}$]. 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 presently measurable. The larger the explained part is, the greater the influence of differences in human capital between CPC members and nonmembers on the wage gap, and vice versa.

The Blinder–Oaxaca decomposition method is commonly used to decompose the wage gap. Cotton (1988), Neumark (1988), and Oaxaca and Ransom (1994) noted that the Blinder–Oaxaca decomposition method, using the estimated coefficient and average values of two groups, may lead to an index number problem. We use the Oaxaca–Ransom decomposition model (Oaxaca and Ransom 1994) to address this problem, which can be expressed as follows:

$$\overline{lnW}_{cpc} - \overline{lnW}_{ncpc} = \beta^{*}\left(\bar{X}_{cpc} - \bar{X}_{ncpc}\right) + (\beta^{*} - \beta_{\text{ncpc}})\,\bar{X}_{ncpc} + (\beta_{\text{cpc}} - \beta^{*})\,\bar{X}_{cpc} \quad (7)$$

where β^{*} is a gender-neutral coefficient estimated based on wage functions using the entire sample, including CPC members and nonmembers. In the Oaxaca–Ransom model, $\beta^{*}\left(\bar{X}_{cpc} - \bar{X}_{ncpc}\right)$ represents the wage gap resulting from a difference in endowment (explained part); $(\beta^{*} - \beta_{\text{ncpc}})\,\bar{X}_{ncpc}$ represents the gap caused by a too low endowment return of CPC nonmembers (known as "loss of CPC nonmembers"), and $(\beta_{\text{cpc}} - \beta^{*})\,\bar{X}_{cpc}$ represents the gap generated by too-high endowment return of CPC members (known as "gain of CPC members"). The sum of these two decomposition values stands for the wage gap resulting from differences in the endowment return (unexplained part).

Finally, to consider the selection bias, as did Oaxaca and Choe (2016), the decomposition model including the selection correction item (δ) is expressed as follows:

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[8] To simplify the expression of decomposition equations, all constant items are omitted.

[9] The published debate suggests an index number problem with the Blinder–Oaxaca model. The estimated results may vary with the kind of comparison group used. Given the space constraints and because the two sets of decomposition results are almost identical, only estimated results using Eq. (5) are presented in this study.

$$\overline{lnW}_{cpc} - \overline{lnW}_{ncpc} = \beta_{\text{cpc}}(\bar{X}_{cpc} - \bar{X}_{ncpc}) + (\beta_{\text{cpc}} - \beta_{\text{ncpc}})\,\bar{X}_{ncpc} + \beta_{\text{cpc}}(\delta_{cpc} - \delta_{ncpc}) + (\beta_{\text{cpc}} - \beta_{\text{ncpc}})\,\delta_{ncpc} \quad (8)$$

$$\overline{lnW}_{cpc} - \overline{lnW}_{ncpc} = \beta_{\text{ncpc}}(\bar{X}_{ncpc} - \bar{X}_{cpc}) + (\beta_{\text{ncpc}} - \beta_{\text{cpc}})\,\bar{X}_{cpc} + \beta_{\text{ncpc}}(\delta_{ncpc} - \delta_{cpc}) + (\beta_{\text{ncpc}} - \beta_{\text{cpc}})\,\delta_{cpc} \quad (9)$$

Based on Eqs. (8) and (9), the decomposition model decomposes the wage gap between CPC members and nonmembers into two parts: the explained part $[\beta_{\text{cpc}}(\bar{X}_{cpc} - \bar{X}_{ncpc}) + \beta_{\text{cpc}}(\delta_{cpc} - \delta_{ncpc})$ or $\beta_{\text{ncpc}}(\bar{X}_{ncpc} - \bar{X}_{cpc}) + (\beta_{\text{cpc}} - \beta_{\text{ncpc}})\,\delta_{ncpc}]$ and the unexplained part $[(\beta_{\text{cpc}} - \beta_{\text{ncpc}})\,\bar{X}_{ncpc} + \beta_{\text{ncpc}}(\delta_{ncpc} - \delta_{cpc})$ or $(\beta_{\text{ncpc}} - \beta_{\text{cpc}})\,\bar{X}_{cpc} + (\beta_{\text{ncpc}} - \beta_{\text{cpc}})\,\delta_{cpc}]$.[10]

4.2 Data and Variables

This study uses the data from the Chinese Household Income Project Survey (CHIPs) of 2002 and 2013. The CHIPs 2002 and 2013 were conducted in 2003 and 2014, separately. Both were conducted by the Institute of Economics, the China Academy of Social Science, Beijing Normal University, and the National Bureau of Statistics (NBS) of China. CHIPs includes local urban residents, migrants, and rural residents. The proportion of migrant CPC members is low, and most workers obtain their wages in urban areas. Therefore, urban local resident samples are used in this study. CHIPs includes information about individual and household characteristics, job status, and wages. CHIPs for 2002 and 2013 provides information about parents in the workplace with CPC membership or parents working as managers (public or private sector) and parents with CPC membership that can be used as identification variables in the sample selection correction model. The sample of the CHIP is a part of the NBS sample that covers representative provinces or metropolises. The provinces or metropolises surveyed in CHIPs 2002 and 2013 are used in this study. They include Beijing, Shanxi, Liaoning, Jiangsu, Anhui, Guangdong, Henan, Hubei, Chongqing, Sichuan, Yunnan, and Gansu in the Eastern, Central, and Western Regions of China.

The analytic objects are workers, and the unemployed are excluded from this calculation. The analytic objects are limited to local urban residents between 16 and 60 years of age to reduce the effect on the analysis result of the retirement system implemented in the public sector, SOEs, and government organizations.[11] Abnormal value,[12] no answer, and missing value samples are deleted.

The dependent variable setting for the probability function of participation in the CPC organization is a binary category variable: the value is equal to one when an individual is a CPC member. In the wage

[10] The estimated results may vary with the kind of comparison group used. Given the space constraints and because the two sets of decomposition results are almost identical, only the estimated results using Eq. (8) are presented in this paper.

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

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

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 basic wages, bonuses, and cash subsidies.

The independent variables are those likely to affect the probability of participation in CPC organizations and the wage level: first, the education and years of experience[13] dummy variables are used as the index of human capital. A female dummy variable is constructed to control the influence of gender disparity.[14]

Second, five kinds of occupations and five types of industry dummy variables[15] are used to control the occupational and industry sector disparities. Public[16] and private[17] sector dummy variables are employed to control the influence of ownership type on wages.[18]

Third, Eastern, Central, and Western Regions dummy variables are constructed to control the regional disparity.

Fourth, a binary dummy variable of parents with CPC membership is constructed using the information in the CHIPs 2002 questionnaire about parents. The value is equal to one when parents (father or mother) have CPC membership and zero when parents do not have CPC membership. Considering that we cannot obtain information on the CPC membership of parents from CHIPs 2013, we use the institute index—the dummy variable of parents who are working/worked in the public sector as managers. It is thought that most managers in the public sector are CPC members. The worker's parent (father or mother) that is working or has worked in the public sector as a manager is equal to 1 and 0 for others.

5. Results

5.1 Results of Descriptive Statistics

Appendix Table A1 summarizes the descriptive statistics for the total sample of the CPC member and nonmember groups. Differentials remain in the mean values of variables between these two groups. Large differentials between CPC members and nonmembers are shown in the proportion of well-educated workers, managers, and workers in the public sector. This result indicates that the differentials of endowment factors between CPC members and nonmembers increased during the economic transition

[13] Years of experience = age-schooling years-6.
[14] Li and Gustafsson (2000), Demurger et al. (2007), and Ma (2018c) analyzed the gender wage gap based on the decomposition methods. They found that, in China, discrimination against women is the main factor.
[15] The CHIP survey has 16 industry categories, to ensure the numbers of samples analyzed. We reclassified the industrial sectors into five kinds.
[16] The public sector is composed of government organizations and SOEs.
[17] The private sector includes COEs, POEs, foreign owned enterprises, and others.
[18] For empirical studies on the wage gap between the public and private sectors in China, please refer to Zhang and Xue (2008), Ye, Li, and Luo (2011), Demurger et al. (2012), and Ma (2018b, 2018c).

period. These differentials may affect the wage gap between CPC members and nonmembers.

Figure1 shows the kernel density distributions by CPC members and nonmembers. The density in high-wage distribution is higher for CPC members than for CPC nonmembers in 2002 and 2013.

Table 1 summarizes the wage gap between CPC members and nonmembers by group. The ratio of the average wage in CPC nonmembers to that in members is used as the indicator of the wage gap between these two groups. A less value means a large wage gap. The results indicate that the wage gap differs by group for 2003 and 2013. For example, for 2013, the wage gap was larger for POEs (70.9%) than for COEs (102.7%) and SOEs (76.8%). Moreover, the wage gap is larger for manufacturing (70.8%) and sales (70.9%) industry sectors than for construction (94.4%) and service (81.6%) industry sectors.

Although the descriptive statistical results indicate that differences of endowment continue to exist between these two groups, a wage gap also persists between CPC members and nonmembers. In addition, the wage gaps differ by group, and these calculations did not control the other factors that can affect the wage gap. We will perform the econometric analyses to investigate the wage premium of CPC membership and determinants of the wage gap in the following.

5.2 Determinants of Participation in a CPC Organization

Table 2 reports the results for the determinants of a worker joining a CPC organization after analysis using the probit regression model. The five main findings are as follows:

First, having parents with CPC membership may positively affect the statistical probability of becoming a CPC member. The results show that the probability of joining a CPC organization is higher for the group with parents with CPC membership than that with nonmember parents: 4.0% for 2002 and 6.6% for 2013. When a worker's parents are or were CPC members, they may gain access to CPC organizations more easily, obtain more information about CPC organizations, and derive more political and social capital from their parents. This case may increase the children's probability of joining a CPC organization. The results suggest the intergenerational transmission of CPC membership, which may lead to the intergenerational transmission of political and economic status. Having a parent with CPC membership is used as an identification variable in the Heckman two-step estimations that follow.

Second, when other factors are constant, the probability of joining a CPC organization is lower for women than for men: 10.3% for 2002 and 7.9% for 2013.

Third, more years of work experience and a higher level of education may increase the likelihood of joining a CPC organization.

Fourth, the probability of joining a CPC organization differs for each ownership sector. For example, the probability of joining a CPC organization is lower for a worker in the private sector (e.g., POEs) than that in the public sector: 13.2% and 11.7% for 2002 and 11.8% and 11.5% for 2013, respectively.

Fifth, the sector of an industry and the region influence the probability of a worker's joining a CPC

organization.

5.3 Wage Premium of CPC Membership

The wage functions are used to investigate the wage premium of CPC membership. **Table 3** presents a summary of the results based on the OLS and the selection bias correction models. Four kinds of analyses are employed using different independent variables. **Figure 2** shows the estimations using the QR model. The main findings are as follows.

First, the results from the OLS model show that the wage premium of the CPC membership is ranged from 7.6% to 37.4% for 2002 from 4.4% to 31.8% for 2013. The results from the selection bias correction model indicate that the wage premium of CPC membership is ranged from 7.5% to 8.5% for 2002, and the coefficients of selection correction items are statistically significant at 1% levels. Meanwhile, the coefficients of CPC member dummy variables are insignificant for 2013. These results indicate that during the 2000s, although CPC membership positively affects wage levels when other factors (i.e., human capital) are held constant, the wage premium of CPC membership on wage levels decreased from 2002 to 2013. This result indicates that the influence of the market mechanism on wage determination increased with the transition to the new economic system.

Second, for 2002, the wage premium of CPC membership was highest in the wage lowest group (10 percentile) and was higher for the low-wage group (10–30 percentiles) than for the middle- and high-wage group. In comparison, for 2013, the wage premium of CPC membership was higher for middle-level wage group (40–60 percentiles). Furthermore, the wage premium of CPC membership in each percentile is lower for 2013 than that for 2002. This result confirms the conclusions that the wage premium of CPC membership decreased from 2002 to 2013 as the market-oriented economic reform progressed.

5.3 Decomposition Results of the Wage Gap between CPC Members and Nonmembers

How do the endowment differentials between CPC members and nonmembers and the discrimination against CPC nonmembers contribute to the wage gap between these two groups? We performed three decomposition analyses to investigate the issue.

(1) Decomposition Results Using the Blinder–Oaxaca Decomposition Model

Table 4 reports the decomposition results of wage gaps between CPC members and nonmembers using the Blinder–Oaxaca decomposition model (Blinder1973; Oaxaca 1973). Decomposition 1 uses the basic human capital model that includes only gender, education, and years of experience variables. Decomposition 2 is an analysis that adds other factors that may influence wage levels (i.e., occupation, industry, ownership, and regional variables). Only the main findings based on the results of Decomposition 2 are summarized because the tendency of results for Decomposition 1 is similar to that for Decomposition

2.

First, the results indicate that the influence of the explained part (66.2% for 2002 and 91.0% for 2013) on the wage gap is greater than that of the unexplained part (33.8% for 2002 and 9.0% for 2013). The endowment differentials between CPC members and nonmembers are shown to be the main factor contributing to the wage gap between these two groups. In addition, as the economic transition advances, the influence of the endowment differential on the wage gap increases. This result indicates that the influence of the market mechanism on the wage gap increased from 2002 to 2013.

Second, the results of the detailed decomposition indicate the following: (1) education is the largest factor in the explained and unexplained part. The educational attainment difference enlarges the wage gap (26.2% for 2002 and 48.3% for 2013), whereas the return of education on wage may reduce the wage gap (−163.8% for 2002 and −60.4% for 2013). The contribution of the educational attainment differences on the wage gap increased from 2002 to 2013. This finding indicates that better-educated workers join the CPC organization, or the CPC organizations tended to recruit well-educated workers as new CPC members during the 2000s. As the economic system changes, CPC members seem to become increasingly intelligent and an elite class in China.

(2) The differential of the number of years of experience may enlarge the wage gap (10.5% for 2002 and 2.0% for 2013), whereas the return to the years of experience may reduce the wage gap (−9.5% for 2002 and −54.5% for 2013).

(3) The difference in occupational distributions between these two groups may contribute to the widening of the wage gap (14.4% for 2002 and 14.0% for 2013). Moreover, the differential of the distribution of ownership types contributes to enlarging the wage gap (9.7% for 2002 and 18.0% for 2013).

(4) The difference in the proportion of female workers may increase the wage gap (1.8% for 2002 and 8.4% for 2013). The results indicate that when the proportion of female workers is higher for the non-CPC membership group, the average wage may be lower for the non-CPC membership group than that for the counterpart. This case may contribute to the wage gap between the CPC members and nonmembers. 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, 2018c, 2021). However, the proportion of female members in the CPC remains smaller than that of male members (Ma and Iwasaki 2019; Ma 2021).

(2) Decomposition Results Using the Oaxaca–Ransom Decomposition Model

The Oaxaca–Ransom decomposition model (Oaxaca and Ransom 1994) is used to consider the index number problem. **Table 5** shows the decomposition results.

In general, the explained parts of the results from the Oaxaca–Ransom decomposition model are greater for 2002 and 2013 than those from the Blinder–Oaxaca model. Thus, the main conclusion is again

confirmed, that is, the main factor contributing to the wage gap between CPC members and nonmembers is the endowment differences between these two groups. For example, for 2002, the value of the explained part is 66.2% for the Blinder–Oaxaca model and 85.0% for the Oaxaca–Ransom model. For 2013, the value of the explained part is 98.3% for the Blinder–Oaxaca model and 95.3% for the Oaxaca–Ransom model. These results indicate that although the index number problem persists in the results for the Blinder–Oaxaca decomposition model, the problem is not severe, and these results are robust.

(3) Decomposition Results Using the Oaxaca–Choe Decomposition Model

A decomposition analysis that includes selection items based on wage functions by the Heckman two-step model is used to examine the sample selection bias problem based on the Oaxaca–Choe model (Oaxaca and Choe 2016).[20] A summary of the results is as follows (**Table 6)**.

First, (1) for 2002, the results from the two kinds of decomposition models are broadly similar. For example, the results indicate that the contribution to the wage gap is greater for the explained part (66.2% for the Blinder–Oaxaca model and 51.6% for the Oaxaca–Choe model). Thus, we again confirmed that the endowment differential between CPC members and nonmembers is the main factor that contributes to the wage gap between these two groups. When the sample selection bias is adjusted, robustness is indicated.

(2) The 2013 results for the two kinds of decomposition models are different. The results from the Blinder–Oaxaca model indicate that the influence of the explained part (98.3%) on the wage gap is greater than that of the unexplained part (1.7%). However, according to the results from the Oaxaca–Choe model, the influence of the unexplained part (156.5%) on the wage gap is greater than that of the explained part (−56.5%). The influence of selection bias seems to be more marked for 2013 than 2002.

These results suggest that the factor (i.e., parents having CPC membership) that determines the probability of joining a CPC organization, and some unobserved factors that are not controlled in the study, such as unobserved ability, may influence the probability of obtaining CPC membership and greatly affect the wage gap. As the economic transition advances, the discrimination and unobservable factors grew in influence and contributed even more to the widening wage gap.

Second, to look at the influence of selection items on the wage gap, (1) for 2002, the difference of selection items reduces the wage gap (−9.6%). However, in the unexplained part, the selection items (109.3%) may increase the wage gap.

(2) For 2013, the difference of selection items also reduces the wage gap (−104.0%), whereas the unexplained part of the selection items may increase the wage gap (342.2%), which is the largest value among these factors.

As the economic transition advanced, the observable and unobservable factors that affect the probability of becoming a CPC member grew in influence and contributed even more to the widening wage gap.

6. Conclusions

This study estimates the impact of membership in the CPC on wage levels. The study examines the determinants of joining a CPC organization and investigates the determinants of the wage gap between CPC members and nonmembers. This study uses the data from CHIPs of 2002 and 2013. An empirical study is employed using wage function, the probit regression model, and the decomposition methods of the Blinder–Oaxaca model, the Oaxaca–Ransom model, and the Oaxaca–Choe model considering the index number problem and the sample selection bias.

Three new findings emerged. First, the probability of joining a CPC organization is higher for a male worker, a well-educated worker, and a worker with more years of work experience than for others for 2002 and 2013. Having parents with CPC membership may increase one's probability of becoming a CPC member.

Second, the wage premium of CPC membership persists in the 2000s. Based on the results for the OLS model, the range of the wage premium is from 7.6% to 37.4% for 2002 and from 4.4% to 31.8% for 2013. The results from the selection bias correction model indicate that the wage premium ranges from 7.5% to 8.5% for 2002, whereas the coefficients of CPC member dummy variables are non-significant for 2013. The results indicate that selection bias affects the wage premium of CPC membership.

Third, when selection bias is not considered, the explained part—including the difference of endowment—is the main factor that contributes to the wage gap between CPC members and nonmembers from 66.2% to 85.0% (2002) and from 91.01% to 95.3% (2013). When selection bias is addressed, for 2003, the explained part is also the main factor, which contributed 51.6% to the wage gap. However, for 2013, the unexplained part becomes the main factor, which contributed 156.5% to the wage gap. Discrimination against non-CPC members and factors that determine the probability of gaining CPC membership contribute to the wage gap. This influence increased from 2002 to 2013 as the economic transition advanced.

The policy implications can be considered as follows: first, the results indicate that, in the 2000s, CPC membership positively affected wage levels, and the wage premium of CPC membership decreased from 2002 to 2013. For the determinants of the wage gap between CPC members and nonmembers, most results show that the influence of endowment (particularly human capital) differences is the main factor and is greater for 2013 than 2002. The results indicate that, as the economic system transition advances, the influence of market mechanisms on wage determination becomes greater, and the wage premium of CPC membership decreases. Although the CPC leadership remains dominant in the political sphere, the influence of market mechanisms on wage determination increased from 2002 to 2013. We can expect that, with the progress of market-oriented reform, the influence of unexplained factors, including discrimination against CPC nonmembers on the wage gap, may decrease. Moreover, the influence of the differences in

the explained parts, including the human capital, may increase.

However, the results indicate that an intergeneration transformation of CPC membership in China may exist. When the human capital and other individual attributes and workplace factors (e.g., occupation, industry sector) are controlled, the parents' membership positively affects the probability of their children becoming CPC memberships. The reason may be the strict selection process of CPC membership (Ma and Iwasaki 2019, 2021; Ma 2021). An individual whose parents are CPC members can obtain more information on CPC organization or more human resources (e.g., obtaining the recommendation from other CPC members who are relations or colleagues of their parents), which may increase the probability of becoming CPC members. The intergeneration transformation of CPC membership may reduce the social class (political elite or non-elite) mobility. This case may expand the social disparity and social division, which may negatively affect the social stability and sustainable development of the Chinese economy from a long-term perspective. Therefore, as the economic system transition advances, political system reform is an essential issue for the Chinese government in the future.

Finally, notably, the wage data used in this analysis only include the basic wage, bonuses, and allowances that are reported. Those working in this academic field well know that some parts of income, such as income derived from corruption, may not be reported and cannot be measured, possibly causing an underestimation of the income gap between CPC members and nonmembers.[19] As we only used two-time points cross-sectional survey data in this study, an empirical study on the impact of the intergeneration transformation of CPC membership on labor marker outcomes from a long-term perspective based on the longitudinal survey data should be challenged in the future. Furthermore, as the economic transition and government governance change by the period, an empirical study using the survey data in the current period should become a future research issue. Despite these limitations, we believe that the current study, which attempted to investigate the determinants of obtaining CPC membership, including wage gaps between CPC members and nonmembers considering the index number and sample selection bias, provided new insights for understanding the relationship between political background and labor market outcomes in China. We also expect the Chinese experience to offer valuable lessons for other economic transition countries that are also performing the economic and political system reforms.

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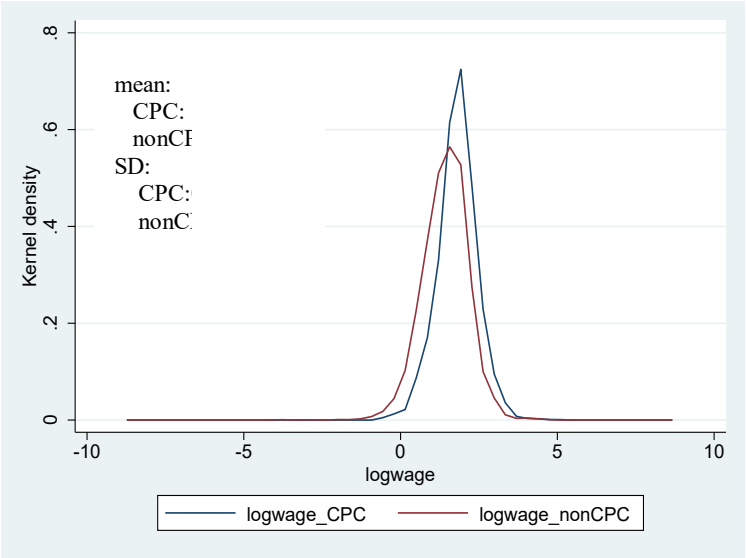

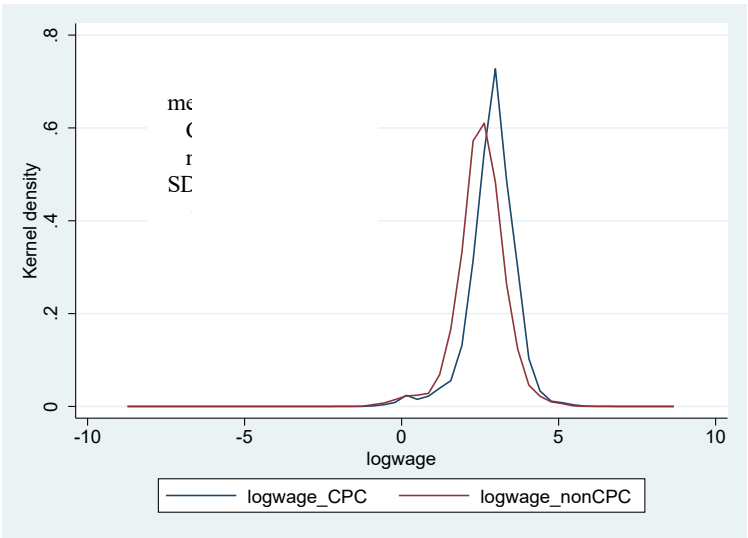

Figure 1 Kernel density distribution of wage by CPC members and non-members

Source: Calculated using the data from CHIPs 2002 and 2013.

Table 1 Wage gaps between CPC members and non-members

Unit: wage rate (Yuan/hourly)

	CPC mmebers	CPC nonmembers	Gap
	(A)	(B)	B/A(%)
Gender category			
female	19.783	14.689	74.3%
male	24.396	18.135	74.3%
Age category			
aged16-29	18.341	14.323	78.1%
aged30-39	22.240	18.011	81.0%
aged40-49	23.134	16.900	73.1%
aged50-60	23.841	16.548	69.4%
Education category			
primary	12.211	11.703	95.8%
junior high school	20.315	13.562	66.8%
senior high school	18.532	15.978	86.2%
college	21.263	19.054	89.6%
university	27.267	26.501	97.2%
Occupation category			
manager and engineer	29.038	22.722	78.2%
clerk	22.408	18.623	83.1%
manufacturing worker	18.840	15.961	84.7%
service worker	16.000	13.295	83.1%
other	19.436	15.346	79.0%
Ownership category			
Public	24.460	18.792	76.8%
COEs	16.631	17.086	102.7%
FOEs	30.564	23.890	78.2%
POEs	22.425	15.889	70.9%
other	16.299	14.549	89.3%
Industry category			
construction	21.436	20.230	94.4%
manufacturing	22.849	16.166	70.8%
sales	19.207	13.624	70.9%
service	19.633	16.015	81.6%
other	23.925	18.248	76.3%

Source: Calculated using the data from CHIPs 2002 and 2013.

Table 2 Results of probability of obtaining CPC membership

	(1) 2002		(2)2013	
	dF/dx	z-value	dF/dx	z-value
Female	-0.105 ***	-10.65	-0.079 ***	-10.29
Age (age16-29)				
age30-39	0.208 ***	10.23	0.092 ***	6.56
age40-49	0.334 ***	17.14	0.140 ***	10.18
age50-59	0.509 ***	21.19	0.240 ***	13.89
Education (primary)				
junior high school	0.086 **	2.49	0.199 ***	4.53
senior high school	0.195 ***	5.47	0.323 ***	7.17
college	0.352 ***	8.67	0.476 ***	9.13
university	0.444 ***	9.92	0.627 ***	11.81
Occupation (manufacturing)				
manager and engineer	0.197 ***	13.36	0.039 ***	2.82
clerk	0.181 ***	11.09	0.163 ***	9.68
service worker	0.052 **	2.20	0.049 ***	3.18
other	0.109 **	2.36	0.046 ***	2.76
Ownership(Public)				
COE	-0.050 **	-2.55	-0.021	-1.29
FOE	-0.132 ***	-4.28	-0.118 ***	-6.81
POE	-0.117 ***	-9.10	-0.115 ***	-11.96
Other	-0.028	-0.75	-0.081 ***	-7.46
Industry sector(manufacturing)				
construction	-0.056 **	-2.12	-0.018	-0.91
sales	-0.043 **	-2.39	-0.089 ***	-5.70
service	-0.052 ***	-4.13	-0.016	-1.03
other	0.086 ***	5.19	0.008	0.61
Region(Western region)				
Central	-1.358E-04	-0.19	0.002	0.18
Western	0.014	0.69	0.028 ***	2.77
Parents CPC	0.040 *	1.86	0.066 ***	4.01
observations	9,342		9,415	
Pseudo R2	0.205		0.247	
Log likelihood	-4608.049		-3669.077	

Notes: 1. *$p<0.1$, **$p<0.05$, ***$p<0.01$.

2. The probit regression model is used. Marginal results were shown in the table.

Source: Calculated using the data from CHIPs 2002 and 2013.

Table 3 Results of wage premium of CPC membership

Methods	Variables	(1)	(2)	(3)	(4)
OLS	**2002**				
	CPC	0.374 ***	0.128 ***	0.093 ***	0.076 ***
		(24.06)	(8.11)	(5.89)	(4.93)
	2013				
	CPC	0.318 ***	0.044 **	0.022	0.022
		(16.44)	(2.23)	(1.09)	(1.10)
Selection correction model	**2002**				
	CPC	0.085 ***	0.079 ***	0.078 ***	0.075 ***
		(5.17)	(4.89)	(4.96)	(4.84)
	Correction itme	0.799 ***	0.409 ***	0.259 ***	0.059 *
		(36.40)	(11.27)	(4.87)	(1.97)
	2013				
	CPC	0.026	0.026	0.025	0.024
		(1.21)	(1.26)	(1.20)	(1.19)
	Correction itme	0.762 ***	0.122 ***	-0.036	-0.049
		(27.78)	(2.88)	(-0.63)	(-0.65)

Notes: 1. *$p<0.1$, **$p<0.05$, ***$p<0.01$.

2. Model (1): the covariate variable include the CPC member and region dummy variables; Model (2): the covariate variables include the CPC member e, female, experience years, education, and region dummy variables; Model (3): the covariate variables include the CPC member, female, experience years, education, occupation, industry sector and region dummy variables; Model (4): the covariate variables include the CPC member, female, experience years, education, occupation, industry, ownership, and region dummy variable. *t*-values are expressed in parentheses.

Source: Calculated using the data from CHIPs2002 and 2013.

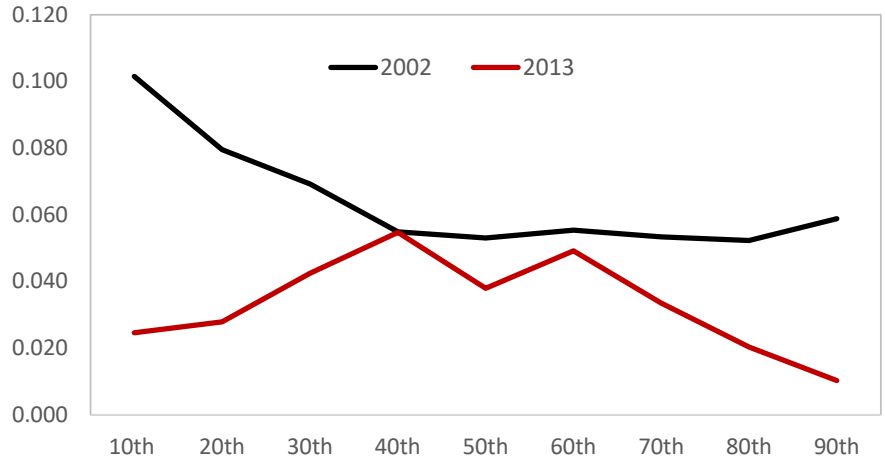

Figure 2 Wage premium of CPC membership by wage distribution

Note: 1. The quantile regression model is used. 10th expresses at 10% wage percentile.

2. The coefficients of CPC member dummy variables are summarized in Figure 2. The covariate variables include the CPC member, female, experience years, education, occupation, industry, ownership, and region dummy variable are estimated, but the results are not expressed in Figure 2.

Source: Calculated using the data from CHIPs 2002 and 2013.

Table 4 Decomposition results of wage gap between CPC members and nonmembers using Blinder-Oaxaca decomposition model

(a) 2002

	(1) Value		(2) Percentage	
	Explained	Unexplained	Explained	Unexplained
[Decomposition1]				
Total	**0.218**	**0.172**	**55.9%**	**44.1%**
female	0.007	0.044	1.8%	11.3%
experience year	0.055	-0.003	14.1%	-0.8%
education	0.156	-0.561	40.0%	-143.8%
constants	0.000	0.693	0.0%	177.7%
[Decomposition2]				
Total	**0.258**	**0.132**	**66.2%**	**33.8%**
female	0.007	0.030	1.8%	7.7%
experience year	0.041	-0.037	10.5%	-9.5%
education	0.102	-0.639	26.2%	-163.8%
occupation	0.056	-0.046	14.4%	-11.8%
industry	0.023	0.053	5.9%	13.6%
ownership	0.038	0.027	9.7%	6.9%
region	-0.009	-0.021	-2.3%	-5.4%
constants	0.000	0.765	0.0%	196.2%

(b)2013

	(1) Value		(2) Percentage	
	Explained	Unexplained	Explained	Unexplained
[Decomposition1]				
Total	**0.305**	**0.051**	**85.7%**	**14.3%**
female	0.034	0.021	9.6%	5.9%
experience year	0.006	-0.251	1.7%	-70.5%
education	0.265	-0.089	74.4%	-25.0%
constants	0.000	0.370	0.0%	103.9%
[Decomposition2]				
Total	**0.324**	**0.032**	**91.0%**	**9.0%**
female	0.030	0.018	8.4%	5.1%
experience year	0.007	-0.194	2.0%	-54.5%
education	0.172	-0.215	48.3%	-60.4%
occupation	0.050	-0.017	14.0%	-4.8%
industry	-0.002	-0.116	-0.6%	-32.6%
ownership	0.064	-0.104	18.0%	-29.2%
region	0.003	-0.114	0.8%	-32.0%
constants	0.000	0.774	0.0%	217.4%

Notes: The Blinder- Oaxaca decomposition model is used.

Source: Calculated using the data from CHIPs2002 and 2013.

Table 5 Decomposition results of wage gap between CPC members and nonmembers using Oaxaca-Ransom decomposition model

	2002				2013			
	Explained	Unexplained			Explained	Unexplained		
		(a) loss	(b)gain	(c) total		(a) loss	(b)gain	(c) total
Total	**85.0%**	**4.4%**	**10.6%**	**15.0%**	**95.3%**	**0.6%**	**4.1%**	**4.7%**
female	4.0%	1.2%	4.2%	5.4%	10.1%	0.4%	3.6%	4.0%
experience year	13.4%	5.6%	-18.0%	-12.4%	3.1%	-7.6%	-34.8%	-42.5%
education	34.9%	-9.3%	-163.3%	-172.6%	57.0%	3.9%	6.7%	10.5%
occupation	15.4%	-1.3%	-11.5%	-12.8%	14.9%	0.6%	-3.1%	-2.5%
industry	6.0%	2.7%	10.8%	13.5%	3.9%	-1.6%	-26.4%	-28.1%
ownership	13.4%	0.4%	2.9%	3.3%	6.0%	-6.2%	-8.6%	-14.8%
region	-2.1%	-1.4%	-4.2%	-5.7%	0.3%	-6.6%	-26.4%	-32.9%
constants	0.0%	6.4%	189.9%	196.3%	0.0%	17.7%	93.1%	111.0%

Notes: 1. The Oaxaca and Ransom decomposition model is used.

2. Gain: gain of CPC members; Loss: loss of non-CPC members; Total = gain of CPC members + loss of non-CPC members.

Source: Calculated using the data from CHIPs2002 and 2013.

Table 6 Decomposition results of wage gap between CPC members and nonmember using Oaxaca-Choe decomposition model

	2002		2003	
	Explained	Unexplained	Explained	Unexplained
Total	**51.6%**	**48.4%**	**-56.5%**	**156.5%**
selection	-9.6%	109.3%	-104.0%	342.3%
female	1.3%	0.9%	5.7%	0.0%
experience	9.6%	38.0%	1.2%	-34.7%
education	24.8%	-126.4%	27.3%	20.1%
occupation	13.5%	-0.9%	8.5%	1.9%
industry	5.4%	11.3%	-4.5%	-38.3%
ownership	9.0%	1.4%	8.4%	-40.0%
region	-2.4%	-5.7%	0.9%	-30.8%
constants	0.0%	20.5%	0.0%	-64.1%

Notes: The Oaxaca and Choe decomposition model is used.
Source: Calculated using the data from CHIP2002 and 2013.

Appendix Table A1 Summary of wage premium of CPC membership in literature

Author	Data	Model	wage premium of CPC
Gustafsson and Li (2000)	CHIPs1988 and 1995	OLS	1988: Male:5.6%; Female: 10.2% 1995: Male:7.7%; Female:10.1%
Li (2003)	CHIPs1995	cohort, OLS OLS	no significant 7.3~11.0%
Knight and Song (2003)	CHIPs1988 and 1995	OLS	1988:4.1%; 1995: 8.6%
Yueh (2004)	CHIPs1995 and 1999	Heckman	1995:10.04~10.37% 1999:15.77~16.45%
Appleton et al. (2005)	CHIPs1988,1995, 1999, 2002	FE	1988:6.8%; 1995:14.6%; 1999:18.1%: 2002:15.2%
Bishp et al. (2005)	CHIPs1988 and 1995	OLS QR	1988:13.0%; 1995: 9.51% 1988:3.31~10.35% 1995:2.22~12.085
Li et al. (2007)	Twin survey	Total: OLS FE Twins: OLS FE	10.0~12.4% no significant -29.80% no significant
Shu et al. (2007)	SWSC2000		Total: 11.3% Male:10.6% Female:14.5%
Braunsterin and Brenner (2007)	CHIPs1995 and 2002	OLS	1995:Male:7.3%, Female:11.2% 2002:Male:6.4%, Female:10.9%
Bishop and Liu (2008)	CHIPs1988,1995	OLS	Male:3.25~4.11% Female:7.07~12.60%
Guo and Hammitt (2009)	CHIPs1995	OLS	3.2~7.7%
Deng and Li (2009)	CHIPs1988,1995 and 2002	OLS	1988:6.1%;1995:7.9%; 2002:8.4%
Appleton et al. (2009)	CHIPs1988,1995 and 1999	Heckman	1988:10%;1995: 14%; 1999:14%
Gao and Smyth (2010)	CULS2005	OLS	Male: 6.52~7.83% Female: no significant (+)
Gao and Smyth (2011)	CASS survey2007	OLS	12.46~14.90%
Laura and Poncet (2010)	CHIPs1995	OLS	7.0~10.0%
Li et al. (2012)	CGSS2010	OLS	9.80% when controlled other factors: no significant
Xiu and Gunderson (2013a)	CHIPs1995 and 2002	OLS	Total:7.4~12.6% Male: 6.7~11.6% female:9.1~14.4%
Xiu and Gunderson (2013b)	LHSCCC	OLS	Male:7.1~12.7% Female:14.2~19.8%
Misgra and Smyth (2014)	CEES2007	GMM	15.80%

Xing (2014)	CHIPs2002	OLS	Urban residents: natives14.4% migrants14.7% Rural residents: local-13.1%, migrants in rural survey11.9%, migrants in urban survey :no significant (-)
Mishra and Smyth (2015)	CEES2007	OLS, IV	OLS:14.2~14.5% IV: no significant (-)
Kwon et al. (2015)	CHIPs1988,1995,2002 and 2007	OLS	1988:7~8%,1995:10~11%, 2002:7~8%
Bian et al. (2015)	CFCS1999	OLS	5.8~8.0%
Wang et al. (2017)	CGSS2003-2010	OLS	no significant
McLaughlin (2017)	CHIPs2002	OLS IV	9.0~17.4% 32.8% or no significant
Ma (2018a)	CHIPs2002 and 2013	Maddala model	2002: Migrant 21.4%, Urban20.7% 2013: Migrant: no significant, Urban: -24.1%
Wang and Lien (2018)	Original migrants survey	OLS QR	16.13% 5.35~20.16%
MacDonald and Hasmath (2018)	CHES2011	OLS	2.42~6.42%

Note: OLS: ordinary least squares model ; IV: the instrumental variable mehod; QR: quantile regerssion model; FE: fixed effects model; GMM: generalized method of moments; Heckman: Heckman two-step selection method.
Source: Author's creation

Appendix Table A2 Description statistics of variables by CPC members and nonmembers

(a) 2002

	(a) Total		(b)CPC		(c)Non-CPC		Gap (Means)
	Mean	SE	Mean	SE	Mean	SE	(b)-(c)
Party	0.291	0.454					
Log. of wage	1.538	0.724	1.815	0.625	1.425	0.731	0.390
Female	0.441	0.496	0.322	0.467	0.489	0.500	-0.167
Years of experience	28.671	9.829	31.152	8.956	27.654	9.989	3.498
Age							
Aged16-29	0.132	0.339	0.042	0.202	0.169	0.375	-0.127
Aged30-39	0.319	0.466	0.268	0.443	0.340	0.474	-0.072
Aged40-49	0.398	0.489	0.437	0.496	0.382	0.486	0.055
Aged50-60	0.151	0.358	0.253	0.435	0.109	0.312	0.144
Education							
Primary	0.023	0.150	0.006	0.078	0.030	0.170	-0.024
Junior high school	0.230	0.421	0.117	0.321	0.277	0.448	-0.160
Senior high school	0.409	0.492	0.337	0.473	0.439	0.496	-0.102
College	0.232	0.422	0.345	0.476	0.185	0.389	0.160
University	0.106	0.307	0.195	0.396	0.069	0.253	0.126
Occupation							
Manager and engineer	0.367	0.482	0.543	0.498	0.295	0.456	0.248
Clerk	0.204	0.403	0.264	0.441	0.179	0.383	0.085
Manufacturing worker	0.288	0.453	0.134	0.341	0.351	0.477	-0.217
Service worker	0.120	0.325	0.044	0.204	0.151	0.359	-0.107
Other	0.021	0.143	0.015	0.121	0.024	0.151	-0.009
Ownership type							
Public	0.667	0.471	0.826	0.379	0.602	0.489	0.224
COEs	0.071	0.257	0.047	0.212	0.081	0.272	-0.034
FOEs	0.023	0.149	0.011	0.104	0.028	0.164	-0.017
POEs	0.214	0.410	0.095	0.293	0.262	0.440	-0.167
Other	0.025	0.157	0.021	0.144	0.027	0.163	-0.006
Industry sector							
Construction	0.033	0.178	0.030	0.170	0.034	0.182	-0.004
Manufacturing	0.255	0.436	0.206	0.405	0.276	0.447	-0.070
Sales	0.122	0.328	0.066	0.248	0.145	0.352	-0.079
Service	0.419	0.493	0.403	0.491	0.426	0.495	-0.023
Other	0.171	0.375	0.295	0.456	0.119	0.324	0.176
Regions							
Eastern	0.391	0.488	0.375	0.484	0.397	0.489	-0.022
Central	0.345	0.475	0.355	0.479	0.341	0.474	0.014
Western	0.264	0.441	0.270	0.444	0.262	0.440	0.008
Parent CPC membership	0.052	0.223	0.055	0.229	0.045	0.207	0.010
Observations	9342		2741		6601		

(b) 2013

	(a) Total		(b)CPC members		(c)CPC nonmembers		Gap(Mean)
	Mean	S.E.	Mean	S.E.	Mean	S.E.	(b)-(c)
Party	0.189	0.392					
Lnwr	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	0.203	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
junor high school	0.289	0.453	0.092	0.289	0.335	0.472	-0.243
senior high school	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	0.426	0.494	0.122	0.328	0.304
Occupation							
manager and egineer	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 worker	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	0.130	0.336	0.096	0.295	0.138	0.344	-0.042
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	0.115	0.318	0.342	0.474	-0.227
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	9,415		1,961		7,454		

Notes: The age is limited from 16 to 60 years of age. Gap = mean values of 2002 - mean values of 2013.
Source: Calculated using the data from CHIPs2002 and 2013.

Appendix Table A3 Wage functions by CPC members and nonmembers

(a) 2002

	(1) CPC members		(2) CPC nonmembers	
	coef.	t-value	coef.	t-value
Female	-0.030	-0.99	-0.037 *	-1.66
Experience	0.029 ***	3.73	0.021 ***	4.28
Exp.-sq.	-3.509E-04 ***	-2.93	-2.539E-04 ***	-3.38
Education (primary)				
junior high	-0.328 **	-2.42	0.184 ***	3.49
senior high	-0.173	-1.23	0.337 ***	5.21
college	-0.002	-0.01	0.458 ***	5.53
university	0.197	1.19	0.616 ***	6.49
Occupation (manusfacturing)				
manager/engineer	0.089 *	1.83	0.027	0.74
clerk	-0.024	-0.53	-0.004	-0.12
service worker	-0.273 ***	-4.44	-0.172 ***	-5.92
other	-0.342 ***	-3.43	-0.219 ***	-3.75
Ownership(public)				
COEs	-0.297 ***	-5.8	-0.287 ***	-9.36
FOEs	0.200 *	1.94	0.303 ***	5.54
POEs	-0.166 ***	-3.77	-0.181 ***	-6.32
Other	-0.140 *	-1.74	-0.332 ***	-6.53
Industry sector(manusfacturing)				
construction	0.073	1.13	0.095 **	2.12
sales	-0.014	-0.29	-0.083 ***	-2.73
service	0.199 ***	6.35	0.145 ***	6.57
other	0.139 ***	3.72	0.049 *	1.62
Region(western region)				
central	-0.457 ***	-18.71	-0.398 ***	-21.93
western	-0.322 ***	-12.31	-0.315 ***	-16.26
Correction item	0.050	0.47	-0.228 ***	-3.74
Constants	1.443 ***	7.96	1.365 ***	6.68
observations	2,741		6,601	
Adj R-squared	0.278		0.272	

(b) 2013

	(1) CPC members		(2) CPC nonmembers	
	coef.	t-value	coef.	t-value
Female	-0.135 ***	-3.04	-0.135 ***	-4.28
Experience	0.014 *	1.74	0.033 ***	7.32
Exp.-sq.	-1.807E-04	-1.41	-0.001 ***	-9.47
Education (primary)				
junior high	-0.200	-0.74	-0.183 **	-2.43
senior high	-0.023	-0.08	-0.165	-1.48
college	0.057	0.21	-0.046	-0.32
university	0.158	0.53	0.063	0.36
Occupation (manusfacturing)				
manager/engineer	0.099 *	1.68	0.103 ***	3.22
clerk	-0.106	-1.34	-0.140 ***	-2.61
service worker	-0.180 ***	-2.60	-0.175 ***	-5.36
other	-0.129 *	-1.80	-0.167 ***	-4.86
Ownership(public)				
COEs	-0.246 ***	-3.26	0.028	0.67
FOEs	0.436 ***	2.78	0.510 ***	6.40
POEs	-0.058	-0.83	0.169 ***	3.38
Other	-0.136 **	-2.16	0.063 *	1.67
Industry sector(manusfacturing)				
construction	-0.046	-0.48	0.283 ***	6.69
sales	-0.006	-0.07	0.150 ***	3.05
service	-0.115 *	-1.69	0.007	0.21
other	-0.081	-1.40	0.081 ***	2.79
Region(western region)				
central	-0.396 ***	-11.70	-0.175 ***	-9.09
western	-0.320 ***	-8.03	-0.183 ***	-7.75
Correction item	0.336 ***	2.12	-0.348 ***	-3.86
Constants	2.718 ***	9.04	2.946 ***	9.72
observations	1,961		7,454	
Adj R-squared	0.223		0.195	

Notes: 1. *$p<0.1$, **$p<0.05$, ***$p<0.01$.
2. Lee (1986) model was used.
Source: Calculated using the data from CHIPs 2002 and 2013.