

Gender-Wage Gap in the Chinese Labour Market

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Abstract

The gender wage gap in China is large and has been increasing during recent years. This paper uses data from the 2013 Chinese General Social Survey (CGSS) to investigate the factors that account for wage differences between males and females in China. The paper employs a regression analysis and a Blinder-Oaxaca decomposition technique to ascertain the causes of the gap between males and females. The results of the regression analysis show that there is a large gender-wage gap in the Chinese labour market. The main variables of region, education, and marital status have important effects on wages. Moreover, the Blinder-Oaxaca decomposition results show that the wage gap is entirely due to the unexplained component, sometimes called discrimination, that is, to differences in the regression coefficients between the male and female regressions.

1. Introduction

The gender wage gap is a global issue. Since the beginnings of time, working women have been paid less than men. The percentage of working women in Canada has increased significantly, from about 42 percent thirty years ago to almost 60 percent now (Canada Women's Foundation, 2017). However, on average, women are paid 74 cents for every dollar paid to men in Canada. Based on a wage gap of 31.5 percent in Ontario, it would take 14 years for a woman to earn the same pay earned by a man by age 65 (Canada Women's Foundation, 2017). Women's low-income abilities mean that if they have children and then separate, divorce or become widows, they are at a high risk of falling into poverty. Their ability to save is deficient and they are more likely to be poor in their senior years (Canada women's foundation, 2017). Gender inequality is considered as an impediment to economic growth and to economic stability in the international arena. Women constitute almost half of the global work force but earn less than men.

As an important economic concern in today's society, the income gap between males and females is a regular topic that has been examined by many scholars around the world. Specifically, in China, Fan (2016) observed that in 1984, the income of female residents accounted for only 84 percent of that of male residents, and that the proportion actually fell to 79 percent in 2002 and to 74 percent in 2007. There is an increasingly large income difference between males and females in China. The

purpose of this paper is to examine the current situation of gender income differences in China.

This paper presents an analysis of the gender wage gap facing legal working age employees in China and of the factors driving that wage gap in 2013. Section 2 discusses the relevant literature related to the gender-wage gap focusing on two countries: Canada and China. In the following section, I describe the dataset used in this paper, the Chinese General Social Survey 2013, and present summary statistics of the key variables. The data display considerable differences across characteristics between men and women. In section 4, the paper explains the methodology utilized in the analysis. I present regression-based estimates of the gender log wage differential, in order to see the extent to which gender differences in individual and job characteristics can help us understand the wage gap. Then, I discuss the results of a standard Oaxaca–Blinder decomposition of the gender wage gap with two specifications; one that excludes industry and occupation, and one that includes them. The last section is the conclusion of paper.

2. Literature Review

Gender inequality is an issue of social welfare. Female workers have a significant disadvantage in comparison to males in all countries. Compensation discrimination and gender segregation are two primary reasons for the differences of compensation between genders. Many studies have focused on the issue of gender wage gap.

According to human capital theory, education is an important factor that explains the income gap. A high level of education can enhance an individual's position in the labour market and strengthen his or her ability to resist discrimination (Montgomery & Powell, 2003). In this section, I briefly review some of the key studies on the gender wage gap, focusing on two countries: Canada and China. Canada is a developed country, while China is a developing country that has grown rapidly over the past few decades. It seems that the gender wage gap has become worse over the past three decades in China (Cheng, Wang and Bian, 2015), but in Canada the wage gap between genders has been narrowing.

2.1 Canadian Studies

One of the earliest studies is by Gunderson (1979) who investigated the over-all earnings gap between males and females in Canada based on the Individual File of the Public Use Sample of the 1971 Canadian Census. He found that women's wages were 60 percent of those of men. Using the Oaxaca decomposition technique, he found that different productivity-related characteristics explained 60 percent of the gap, and that wage discrimination explained the other 40 percent. He also showed that differences in pay for some characteristics are particularly pronounced, namely education, marital status and experience. Gunderson (1989), using data from Labour Force Survey, showed that differences in wages and occupational distributions of men and women reflect discrimination in the labour market, and occupational segregation accounts for the majority of income differences by gender.

Some recent studies looked at changes over time of the gender wage gap. Schirle (2015) analyzed the gender gap from 1997 to 2014 based on the data from the Labour Force Survey (LFS). She showed that the gender gap has narrowed. The analysis also suggests the gender wage gap can be explained to a large extent by gender differences in industry and occupation. Those results are consistent with those of Morissette, Picot, and Lu (2013) that the gender wage gap in Canada seems to be shrinking. Those authors used various data sets in order to cover a long period of time, including the Survey of Work History (SWH), the Survey of Union Membership (SUM), the Labour Market Activity Survey (LMAS) and the Labour Force Survey (LFS). They found that the gender wage gap fell from 26 percent to 13 percent between 1981 and 2001.

In addition, some studies pointed out that much of decline in gender compensation differences can be attributed to increased women's education and participation in the workforce. Baker and Drolet (2010) studied the Survey of Work History (SWH), the Survey of Union Membership (SUM), the Labour Market Activity Survey (LMAS), the Labour Force Survey (LFS) and the Survey of Labour and Income Dynamics (SLID) and documented the gender wage gap from 1981 to 2008. The study shows that throughout the period, nearly 60 percent of the change in the log wage gap can be explained by changes in characteristics. While no feature dominates, the proportion of

women with university degrees and the proportion of working in management and social science/education increased significantly.

As the studies show, the gender wage gap has decreased in Canada over time. Much of the previous literature observes that a large proportion of the gap can be explained by the fact that women have increased their attributes related to productivity by a substantial amount.

2.2 Chinese Studies

In recent years, following important economic development and the opening of its economy, China has paid some attention to gender inequality, as women have been given more opportunities in their career development. The proportion of Chinese females who receive higher education is rising, and more than 49 percent of students in Chinese college and universities are now females (Kajanus 2015).

Yao, Huang and Su (2007) observed that although women are discriminated in the labour market, their return to education is higher than that of men, as it is in Canada and other developed countries. Zhao and Tian (2018) employed the Mincer income function to analyze gender differences using ordinary least squares (OLS) and quantile regression (QR), based on data from the Chinese Household Income Project Survey (CHIP) in 1999 and the Chinese General Social Survey (CGSS) in 2008 and 2013. They concluded that the return to education for women is higher than that for

men at each education level while males have a significant advantage in annual income.

Early research (Wang, 2005; Li and Ma, 2006,) indicates that gender income differences are caused by gender discrimination. Similarly to other countries, there are two types of gender discrimination. One is compensation discrimination, that is, female employees performing substantially equal work receive less pay for their work. The other type is gender segregation, e.g., a glass ceiling inequality, which keeps women from high-paying positions regardless of their achievements.

Wang (2005) conducted an empirical study of both types of discrimination. She used Labour Force Survey data for five cities in China in 2001 to study the impact of gender wage differences, and concluded that the primary reason for gender wage differences is compensation discrimination. However, Li and Ma (2006) arrived at a different conclusion. They studied gender occupational distribution of urban employees by using data from the Urban Residents' Income Survey in 1999. They showed that occupation segmentation is significant in the urban labour market of China, and gender discrimination is the main reason for the formation of the gender wage gap. Yao and Huang (2008), using the 2002 China Urban Household Survey Data (CUHSD), showed that compensation discrimination and gender segregation both play an important role in the gender wage gap.

In a recent study, Zhao (2014) employed the Blinder-Oaxaca decomposition method to analyze gender differences in urban areas in China in 2007, based on data from the CGSS 2008. The authors showed that the unexplained factors (that can be interpreted as gender discrimination) account for 98 percent of the total gender wage gap. Zhu *et al.*, (2014) analyzed the data from a survey on the social status of Chinese women commissioned by the All-China Women's Federation and the National Bureau of Statistics between 1990 and 2010. Applying the Blinder-Oaxaca decomposition method, they also found that the compensation discrimination is the main cause of gender income disparity. Gender segmentation has always existed in the Chinese labour market and, more importantly, they found that the gender wage gap had expanded between 1990 and 2010.

Zhang and Xu (2014) believe that marketization is an important reason for the differences in income by gender. Marketization refers to using the market as a basic means of solving social, political and economic problems, which includes the deregulation of the economy and privatization of industrial property rights. The authors analyzed data from the China Urban Household Income Survey in 1988, 1995 and 2002. They showed that the income gap increased from 15.4 percent in 1988 to 18.37 percent in 1995 and to 25.91 percent in 2002, and they concluded that the gender wage gap between males and females is expanding due to the marketization. One can also find this conclusion in the earlier studies of Gustafsson and Li (2000) and Hauser and Xie (2005), who concluded that the gender income gap has

significantly increased since the 1990s, and they believed that marketization is the main cause of that increase in the gender wage gap.

Social capital could also be a factor explaining the gender earnings gap in China's urban labour market. Employing Blinder-Oaxaca decomposition and quantile regression decomposition techniques, Cheng, Wang, and Bian (2015) and Fan (2016) investigated the gender income gap based on data from JSNET2009 (a social network and occupational experience questionnaire survey) and suggested that the deficit of social capital and of social capital return of females gives rise to the compensation disadvantage that they face in compensation in the Chinese urban labour market.

The above studies indicate that large difference in income by gender exist in both the Chinese and Canadian labour markets. The gap in China is wider than the one in Canada. Moreover, the trends in China and Canada are different: the gap narrowed in Canada but widened in China over the last three decades. Although many researchers have shown that differences in human capital and other characteristics affect gender wage inequality, a large portion of gender wage differences cannot be explained by differences in those observable characteristics. This paper will extend the previous literature to evaluate the causes of the gender wage gaps by using recent Chinese data.

3. Data and Descriptive Statistics

3.1 Data and Sample Restriction

The China General Social Survey (CGSS) 2013 that I use in this paper is the fourth annual survey of CGSS (2010-2019) which contains a total of 11,438 individual records and 650 variables collected from 28 provinces (including autonomous regions and municipalities). The data were collected by the research project ‘Chinese General Social Survey (CGSS)’ carried out by the National Survey Research Center, Renmin University of China (NSRC). The purpose of the survey is to systematically and comprehensively collect information on behaviours, attitudes, and opinions about life and work of the Chinese people, to further reflect Chinese behaviours and thought patterns and social structures.

In order to best evaluate gender differences in income, restrictions are applied to the data set. Firstly, according to the labour law of the People's Republic of China, the legal working age is from 16 years old to 60 years old for males, and to 55 years old for females. Therefore, individuals who are under or over the legal ages are excluded from the samples. Individuals with no income were omitted from the data. Furthermore, this paper does not include the top one percent and the lowest one percent of individual annual wages since they might be considered as outliers in the regression model. Last but not least, I also drop observations with missing values on variables such as age, education, presence of children and working time. After combining all those restrictions the final sample size includes 5,568 usable observations.

3.2 Variables

Dependent variable

The CGSS datasets include the individual annual labour earnings, in Chinese Yuan (CNY). The dependent variable used in this paper is the log of the annual lab earning, which is applied to convert the skewed distribution of the original data into an approximately normal distribution.

Independent variables

To analyze the gender wage gap, it is necessary to identify the factors that can influence compensation, to find out how the payment imbalance between the genders is affected by the diverse characteristics. Therefore, the key variables that relate to the dependent variable are used as control variables. In this section, independent variables are divided into six categories: geography, personal, family, education, industry and occupation. I also use these six groups to classify the independent variables in the Blinder-Oaxaca decomposition that follows.

Geography

The dataset contains 28 provinces, which I divide into coastal and central regions. The way of dividing regions is based on the economic development level of the Chinese provinces. The most developed regions in China are the coastal regions, which contain (from North to South) Hebei, Beijing, Tianjin, Shandong, Jiangsu, Shanghai, Zhejiang, Fujian and Guangdong provinces. The central regions include all other

provinces that are included in the survey (Anhui, Gansu, Guangxi, Guizhou, Henan, Heilongjiang, Hunan, Hubei, Jilin, Jiangxi, Liaoning, Inner Mongolia, Ningxia, Qinghai, Shanxi, Shaanxi, Sichuan, Yunnan, and Chongqing). People in the coastal areas, on the one hand, have higher incomes and are more fluent in English, and, on the other hand, need to face more challenges and competition.

China's Hukou system is a family registration program that serves as a domestic passport, regulating population distribution and rural-to-urban migration. It is a tool for social and geographic control that enforces an apartheid-like structure that denies farmers the same rights and benefits enjoyed by urban residents. Therefore, Hukou is an important factor in the analysis of income. The regression model also includes a variable to indicate where the respondent lives. If the worker lives in a rural area, this dummy variable is equal to 1, and it is otherwise 0 if the respondent lives in an urban area. Note that the difference between Hukou and residence is that Hukou defines where a person was born, which determines the benefits that go with it, while residence is where you a person lives at the time of the survey. In order to respond to the needs of economic development, many people with rural hukou live in urban areas.

Education

Education is an essential human capital characteristic that plays an important role in the labour market. In the regression model, education is specified into five different

levels: lower, middle, high, college and university. Lower education is identified with individual with no education or only primary education. Middle education includes people who only finished secondary school education. The third education level, high, refers to individuals who graduated from high school or a technical school. The two highest levels, 'college' and 'university' are distinguished by the diploma; 'college' indicates people who hold a college diploma and 'university' indicates people who hold a bachelor's or a higher-level degree. The lowest education level, lower, is used as the benchmark.

Personal

Gender, is a dummy variable which is included in the regression model, and is the key variable in this research. The variable 'gender' is defined as '1' if the individual is a male, and '0' if female. In addition to regressions that include the whole sample, separate regressions are estimated for each gender.

In China, whether an individual is a communist party member or not may have an impact on income. Therefore, 'member' as a dummy variable is included in the regression model. If the individual is a member of the Chinese Communist Party, the variable 'member' identified is equal to 1; if not, it is equal to 0.

China is composed of 56 ethnic groups. According to the Fifth National Population Census of 2000, Han Chinese account for 91.6 percent of the overall Chinese

population and the other 55 groups make up the remaining 8.4 percent. As the largest population group in China, whether a person is Han Chinese or not could affect income. Therefore, Han ethnic group is added in the regression model as a dummy variable.

The age of workers is also an important factor, which can be also viewed as an approximation of working experience. As workers grow older, they develop more skills in the Chinese labour market, which often leads to higher wages than less experienced workers. I also included age squared in the model, because the effect of age is expected to decrease as age increases. In addition, working time is important to be considered as an independent variable. Therefore, working time as a dummy variable is included in regression model. 'ft' is equal to 1 for full-time workers and is equal to 0 for part-time workers.

Family

It is also important to consider children and marital status as control variables; some studies have shown that married individuals, especially with children, show more responsibilities. 'Child' is equal to 1 for a person who has one child or more, and is equal to 0 for a person with no child. If the individual is married, the variable 'marriage' is equal to 1; if not, it is equal to 0. Family roles and responsibilities may increase the commitment of married individuals to higher wages. In the family, men and women do not always have the same responsibilities, so the effects could differ by

gender.

Industry

The distribution of industries where people work can explain a large portion of the income difference between males and females. Certain industries are thought to be more gender specific than others. For instance, male employees have a strong advantage in heavy manual work while females have been preferred in nurseries. The variable 'industry' is specified in 11 groups which include Manufacturing, Construction, Transportation/post, Whole Sale/Retail/Cafeteria, Social Service, Farm/Forestry/Fishing, Mining, Electricity/Gas/Water, Education/Science/Broadcasting Government/Social Organization and Others. Social service is used as the reference group. Given that industry can be the result of gender segregation in access to some jobs, some specifications include the industry variables and others do not.

Occupation

Occupation is also an important component of individuals' work since income varies depending on the position, I divide occupation into five standard groups: Officials/Manager, Professional/Technician, Service/Sale Workers, Plant and Machine Operators/Assemblers, and Other in order to represent the different category of occupations of China's people. I use other occupations as a benchmark. As before given that occupation can be the result of gender segregation, some specifications

include the occupation variables and others do not.

3.3 Descriptive Statistics

Some descriptive statistics are presented in this section to examine the characteristics of the samples. These statistics provide some background information for the subsequent regressions analysis. Table 1 shows the mean values of the variables in my dataset, which is divided into of three groups: total sample, male and female.

It follows from Table 1 that 59.8 percent of individuals in the sample are males and 40.2 percent are females, from which we can see an unequal distribution of the two genders in the workplace. On average, the log of annual wages is 9.868, where the value for males is 10.026 and the one for females is 9.632. Taking the difference between the two logs, males earn on average about 39.4 percent more than females in China. The average age of females is approximately three years younger than that of males. We observe that 63.2 percent of total participants are full-time worker, while the others are part-time worker. More males than females work full-time.

About a quarter of the participants have received no education or only completed primary education. A third of the participants completed junior high school education and 22 percent of them completed high school education. In addition, 11.4 percent of the participants hold a university degree and 10.4 percent received a bachelor's or master's degree. Comparing the genders, more men than women completed junior

high school and high school education. However, there are more women than men in the two extremes, with low and high education. This is different from the situation in Canada and other developed countries, because they have fewer women than men in lower education levels.

With regard to the variables of “residence”, we can see that more than six out of ten individuals in the sample live in urban areas. Similar proportions can be found in variable ‘region’. The data show that 62.4 percent of total participants live in the central areas and the others live in the coastal areas. The last variable about region is Hukou. The proportion of individuals with rural Hukou is 56.5 percent, which is slightly higher than the number holding urban Hukou.

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Regarding the variable of ‘marital status’, we can see that the large majority (84.1 percent) of Chinese are married. Moreover, 84.3 percent of the participants have at least one child, while the remaining participants have no children. There are more females than males that have at least one child at home.

In table 1, the members of Chinese Communist Party account for around 10.6 percent of the total sample, with more males than females being communist members. Hence, the majority of Chinese are not members of Chinese Communist Party.

Looking at the distribution by industry, a greater proportion of men than women work in the construction, transportation/ post, mining and electricity/ gas/ water industries, while, the industries of education/ science/ broadcasting and wholesale/ retail/ cafeteria hire a higher proportion of female employees. Concerning occupation, more males than females work the office/ manager/ plant and machine operators/assemblers occupations, while more females than males are engaged in services and sales.

4. Methodology

I use ordinary least square regressions (OLS) with robust standard errors to analyze the gender wage difference in China. I run three groups of regression models with different subsets of independent variables.

4.1 Empirical specification

Several regressions are estimated where new variables are added in turn to the model. The first specification only includes the gender variable. By estimating this simple model, I obtain the gross gender wages gaps.

Specification 1

$$\ln Wage = \beta_0 + \beta_1 Gender_i + \epsilon_i$$

To further analyze the cause of gender compensation differences, according to the previous studies, more variables are added in the regression model as shown in specification 2. By adding those control variables which are divided in four categories

(geography, person, family and education), we will see if the dependent variables can be explained better.

Specification 2

$$\begin{aligned} \ln \text{Wage} = & \beta_0 + \beta_1 \text{Gender}_i + \beta_2 \text{Rural} + \beta_3 \text{Member} + \beta_4 \text{Han} + \beta_5 \text{Ft} \\ & + \beta_6 \text{Marriage} + \beta_7 \text{Age} + \beta_8 \text{Age2} + \beta_9 \text{Child} + \beta_{10} \text{Middle} \\ & + \beta_{11} \text{High} + \beta_{12} \text{College} + \beta_{13} \text{University} + \beta_{14} \text{Coastal} \\ & + \beta_{15} \text{Hukou} + \epsilon_i \end{aligned}$$

According to the previous literature, industry and occupational segregation account for a large part of labour market differences by gender. As we saw in Table 1 males and females have different distributions by industry and occupation. In order to see how the relationship is affected, industry and occupation variables are added in specification 3.

Specification 3

$$\begin{aligned} \ln \text{Wage} = & \beta_0 + \beta_1 \text{Gender}_i + \beta_2 \text{Rural} + \beta_3 \text{Member} + \beta_4 \text{Han} + \beta_5 \text{Ft} \\ & + \beta_6 \text{Marriage} + \beta_7 \text{Age} + \beta_8 \text{Age2} + \beta_9 \text{Child} + \beta_{10} \text{Middle} \\ & + \beta_{11} \text{High} + \beta_{12} \text{College} + \beta_{13} \text{University} + \beta_{14} \text{Coastal} \\ & + \beta_{15} \text{Hukou} + \beta_{16} \text{industry1} + \beta_{17} \text{industry2} + \beta_{18} \text{industry3} \\ & + \beta_{19} \text{industry4} + \beta_{20} \text{industry6} + \beta_{21} \text{industry7} + \beta_{22} \text{industry8} \\ & + \beta_{23} \text{industry9} + \beta_{24} \text{industry10} + \beta_{25} \text{industry11} + \beta_{26} \text{occ1} \\ & + \beta_{27} \text{occ2} + \beta_{28} \text{occ3} + \beta_{29} \text{occ4} + \epsilon_i \end{aligned}$$

4.2 The Blinder-Oaxaca decomposition

The Blinder-Oaxaca decomposition has been used widely to examine the labour market practices that affect different groups of workers (gender, race, and so on). It decomposes mean differences in log wages with regression models using a counterfactual approach. (Blinder1973; Oaxaca 1973). Details of the decomposition employed in this paper are presented in what follows. First, regressions are estimated for males and females separately as in specification 2 (without industry factors and occupation factors):

$$\ln \text{Wage}_F = X_F B_F + \epsilon_F$$

$$\ln \text{Wage}_M = X_M B_M + \epsilon_M$$

(M and F are subscripts that represent males and females respectively.)

Where $B = (\beta_{rural}, \beta_{member}, \beta_{\square an}, \beta_{ft}, \beta_{marriage}, \beta_{age}, \beta_{age2},$

$\beta_{c\squareild}, \beta_{middle}, \beta_{\square ig\square}, \beta_{college}, \beta_{university}, \beta_{coastal})$

$X = (rural, member, \square an, ft, marriage, age, age2, c\squareild,$

$middle, \square ig\square, college, university, coastal, \square ukou)$

Then estimate the regression with industry factors and occupation factors as in Specification 3.

$$\ln \text{Wage}_F = X_F B_F + \epsilon_F$$

$$\ln \text{Wage}_M = X_M B_M + \epsilon_M$$

(M and F are subscripts that represent males and females respectively.)

Where

$B =$

$(\beta_{rural}, \beta_{member}, \beta_{\square an}, \beta_{ft}, \beta_{marriage}, \beta_{age}, \beta_{age2}, \beta_{c\squareild}, \beta_{middle}, \beta_{\square ig\square},$

$\beta_{college}, \beta_{university}, \beta_{coastal}, \beta_{industry1}, \beta_{industry2}, \beta_{industry3},$

$$\beta_{industry4}, \beta_{industry6}, \beta_{industry7}, \beta_{industry8}, \beta_{industry9}, \beta_{industry10},$$

$$\beta_{industry11}, \beta_{occupation1}, \beta_{occupation2}, \beta_{occupation3}, \beta_{occupation4})$$

$$X = (rural, member, \square an, ft, marriage, age, age2, c\squareild, middle, \square ig\square,$$

$$college, university, coastal, \square ukou, industry1, industry2, industry3,$$

$$industry4, industry6, industry7, industry8, industry9, industry10,$$

$$industry11, occupation1, occupation2, occupation3, occupation4)$$

The covariates of the separate regression are applied in the overall gender pay-gap decomposition to facilitate the interpretation, that is for Specification 2.

$$\ln\overline{Wage}_M - \ln\overline{Wage}_F = (\overline{X}_M - \overline{X}_F) * B_M + (B_M - B_F) * X_F(1)$$

$$B = (\beta_{rural}, \beta_{member}, \beta_{\square an}, \beta_{ft}, \beta_{marriage}, \beta_{age}, \beta_{age2},$$

$$\beta_{c\squareild}, \beta_{middle}, \beta_{\square ig\square}, \beta_{college}, \beta_{university}, \beta_{coastal})$$

$$X = (rural, member, \square an, ft, marriage, age, age2, c\squareild,$$

$$middle, \square ig\square, college, university, coastal, \square ukou)$$

(M and F are subscripts that represent males and females respectively.)

And for Specification 3.

$$\ln\overline{Wage}_M - \ln\overline{Wage}_F = (\overline{X}_M - \overline{X}_F) * B_M + (B_M - B_F) * X_F \quad (2)$$

(M and F are subscripts that represent males and females respectively.)

$$B = (\beta_{rural}, \beta_{member}, \beta_{\square an}, \beta_{ft}, \beta_{marriage}, \beta_{age}, \beta_{age2}, \beta_{c\squareild}, \beta_{middle}, \beta_{\square ig\square},$$

$$\beta_{college}, \beta_{university}, \beta_{coastal}, \beta_{industry1}, \beta_{industry2}, \beta_{industry3},$$

$$\beta_{industry4}, \beta_{industry6}, \beta_{industry7}, \beta_{industry8}, \beta_{industry9}, \beta_{industry10},$$

$$\beta_{industry11}, \beta_{occupation1}, \beta_{occupation2}, \beta_{occupation3}, \beta_{occupation4})$$

$$X = (\text{rural}, \text{member}, \text{nan}, \text{ft}, \text{marriage}, \text{age}, \text{age2}, \text{child}, \text{middle}, \text{ig}, \text{college}, \text{university}, \text{coastal}, \text{ukou}, \text{industry1}, \text{industry2}, \text{industry3}, \text{industry4}, \text{industry6}, \text{industry7}, \text{industry8}, \text{industry9}, \text{industry10}, \text{industry11}, \text{occupation1}, \text{occupation2}, \text{occupation3}, \text{occupation4})$$

$\ln(\text{Wage})$ is used to evaluate compensation and X is applied to represent the wage-deciding features or independent variables in the pay equations. B are the estimated coefficients of the pay-deciding features. Equations (1) and (2) are the male base decompositions that I used in this paper to analyze the wage difference. The male coefficients are used to evaluate differences in characteristics. The term $(\overline{X_M} - \overline{X_F}) * B_M$ represent the “explained” part of the log wage gap which is interpreted as being due to productivity differences in observable characteristics between male and female workers. The second term $(B_M - B_F) * X_F$ captures the “unexplained” portion of the wage gap between men and women, which are due to differences in coefficients and which in the literature is often interpreted as a measure of discrimination in the labour market.

To sum up, by using the regression models and the Blinder-Oaxaca decomposition, I can find whether females are treated differently from males in the Chinese labour market. The use of the Blinder-Oaxaca decomposition helps to identify to what extent

the total gap in compensation results from observable differences between men and women.

5. Results

In the section, I will discuss the main findings of the regression results. First, I will analyze the OLS regression results. Then, I will introduce and discuss the Blinder-Oaxaca decomposition results, which will highlight factors that are related to the “explained” and the “unexplained” portions of the gender-wage gap. Subject to the reservations mentioned above, the “unexplained” portion is taken as an indicator of gender-wage discrimination in the Chinese labour market.

5.1. Regression Results

The linear OLS results provide insight into the returns to characteristics for males and females, and how the wage differs by age, hukou, Han, member, and so on. I first present the OLS regression results for specification 1 which has only one independent variable. The result in table 2 shows that the coefficient of Gender is estimated to be 0.394, suggesting that a 39.4 percent gross pay advantage for males exists in the Chinese labour market.

In specification 2, I add 14 independent variables that are classified in four groups (geography, personal, family and education). The result in the second column of table 2 suggest that at 1 percent significance level males receive a 42.3 percent higher

wage than females, which is larger than in the raw model. Living in a rural area presents a negative marginal effect that shows that rural residents earn 28.0 percent less than urban residents. Furthermore, people who live in the coastal areas are earning 39.0 percent more than those who live in the central areas. Rural 'Hukou' has a negative effect but is not significant in the model. In the group of 'personal' characteristics, the variable 'member' and 'Han' are not significant, but 'full-time' and 'age' are significant at the 1 percent level. It shows that a full-time worker could earn 5.25 percent more than a part-time worker. Regarding the education variables, all four levels of education are significant at the 1 percent level; the data show that the higher the education level, the higher the wage. The last group of variables shows that at the 10 percent significance level, married people earn 7.94 percent more than single ones. The coefficient of 'child' is not significant in this model.

The R-squared is a statistical measure that represents the proportion of the variance for a dependent variable that's explained by independent variables. Table 2 shows that the specification 3 has a R-squared 0.4720.

After adding the industry factors and occupation factors in specification 3, the gender wage difference decreases slightly to 40.3 percent. The other variables that are the same as in specification 2 do not change much. Regarding of group of 'industry' variables, the coefficient of Construction is 0.1772, and its significance at the 1 percent level, which shows that people who engaged in construction will earn more

than those who engaged in social service. This might relate to the fact that there are more males than females working in construction. The coefficients of ‘Education/Science/ Broadcasting’ and ‘Government/ Social Organization’ are negative, means people working in those industries are earn less than people engaged in social service. As for the occupation variables which are all significant at the 1 percent level, people who work in the Officials/ Manager and the Professional/ Technician occupation have a 37.7 and 24.4 percent respectively higher salary than the reference group (other occupations). In addition, the coefficient of ‘service and sale workers’ and ‘plant and machine operators/ assembles’ are 0.181 and 0.162, respectively. This shows that people working as in those occupations earn more.

Table 3 and Table 4 show the regression results for males and female separately, with table 4 including the industry and occupation factors, while table 3 does not include them.

In table 3, the constant term is much higher for males (8.302) than for females (7.670), meaning that men earn much more than women all the independent variables take the values of zero. Looking at the geographic factors, males earn 42.9percent more if they are in the coastal area while females earn only 34.3 percent more, and there exists a negative effect on earnings for both males and females if they are rural residents. Hukou is not significant in the regression model for both genders. Perhaps because more people than before have an urban hukou, the variable “hukou” no longer affects

wages. Regarding the personal factors, the coefficient of ‘member (of the communist party)’ is 0.0799 for males and 0.0115 for females. In another words, a male who is a member of the communist party benefits more than a female. This may be because there are more men working in government departments than women. Also, as seen earlier in Table 1, more males than females are communist party members. Age and full-time work have a positive effect on earnings for both males and females. The variable ‘Han’ has positive effect for males at the 10 percent significant level, but it is not significant for females. This may be because only a small percentage of professional women are ethnic minorities. In the ‘family’ group of variables, the results show that the effect of marriage for males is much larger than for females; married males earn 21.2 percent more than unmarried ones, while marriage has a negative effect for females. Unlike in Canada and other counties, the coefficient of the variable ‘Child’ is not significant neither for men nor women. Considering the education level, we can find that differences between males and females widen with the increases in the education level. Specifically, males earn 12.3 percent more than the reference group of low education if they finished middle school and it is about the same for females who earn 15.9 percent more; however, at the university level, males only earn 60.5 percent more than the reference group while females earn 82.8 percent more. The potential reason may be that highly-educated people are more likely to do professional and precise work, providing an advantage to females. This result is consistent with the usual finding that returns to education are higher for females than for males in most countries.

After including the industry factors and occupation factors, table 4 shows the earning regression separately for males and females. The constant terms for males and females are similar to those of Table 3. The coefficients of the variables which are also included in Table 3 are almost the same as the previous ones. Regarding to the industry factors, there are some significant differences between males and females. For example, woman who work in the Construction industry earn 46.7 percent more than the reference group while man only earning 15.7 percent more than reference group. However, as shown in Table 1, very few women work in that industry. The Education/Science/ Broadcasting and Government/Social Organization industries have a large negative effect on female wages while these industries have small negative effect on male wages. For the occupation variables, all occupation variables (Officials/ Manager, Professional/ Technician, Service/Sale Workers, Plant and Machine Operators/ Assemblers) have higher wage returns for males than for females, compared to the reference category.

5.2 Blinder-Oaxaca decomposition Results

Based on the OLS estimates, the Blinder-Oaxaca decomposition generates the wage-gap between males and females, and then identifies the "explained" and "unexplained" components of the gender wage gap. The categories of explanatory variables I used to estimate the wage equations are divided into six groups: geography, personal, family, education, introduction and occupation group. The difference

between the two columns in Table 5 is that the second one includes industry and occupation factors while the first one does not. In Table 5, the positive numbers indicate an advantage to males and the negative numbers indicate an advantage to females.

The two decompositions show that the gross compensation gap to be decomposed between males and females is 0.394, indicating that males earn 39.4 percent more than females. As in the above equations, I take the males' compensation as the baseline. The explained part of the compensation gap can be accounted for by the explicit attributes differences and the unexplained part is due to gender differences in regression coefficients. The table shows that the 'explained' part is negative and more than the total gap is 'unexplained'. This outcome is similar to what has been found in Canada and other developed countries.

Consider the 'explained' portion of the gender wage gap in the first column of Table 5. The results show that the estimated coefficients of the geography factors, the personal factors and the family factors are negative. The negative coefficients indicate that women have better characteristics than men for those groups of variables. The largest negative coefficient of the 'explained' is the personal factors. This might be because the average age of female workers is younger than that of males. 'Family' and 'geography' contribute a small part of the 'explained' part of wage gap. The factors

‘education’ shows a positive effect indicating that males have an advantage, but the effect is not significant.

The ‘explained’ part of the second column of Table 5 shows similar results to those of the first column for geography, personal, family and education. However, the new factors of ‘industry’ and ‘occupations’ that are added in the second decomposition show different contributions to the ‘explained’ part. The estimated coefficient of ‘industry’ is positive, but ‘occupation’ is negative but not significant. The result for industry means that males tend to work in industries that pay more than the industries where females work.

Looking at the ‘unexplained’ portion of the wage gap in Table 5, the results show that the largest component is the constant term which represents the wage gap when all characteristics are zero. As noted earlier, the constant terms of the regression are much higher for males than for females. Additionally, ‘family’ characteristics account for a large positive and significant part of ‘unexplained’ portion, while personal shows a negative but not significant effect. As we saw earlier, marriage has a much larger effect on wages for males than for females. Geography, education, industry and occupation factors have a little effect in the ‘unexplained’ portion of the wage gap.

Overall, the Blinder-Oaxaca decomposition results show the total effect of ‘explained’ in both decompositions are negative; meaning that female would earn more than

males if there was no discrimination. In addition, the positive values of the ‘unexplained’ part indicate that women receive lower annual wages because of the magnitude of their regression coefficients are not as advantageous as those of their male counter parts. This can be interpreted as discrimination against the Chinese women.

6. Conclusion

This paper has explored income differences between men and women in the Chinese labour market using data from the 2013 Chinese General Social Survey. Linear regressions estimated by the OLS technique were employed to analyze the effect of various characteristics (geography, family, personal, education, industry and occupation) on annual wages. Then, I utilized the Blinder-Oaxaca decomposition technique to identify the ‘explained’ and ‘unexplained’ portions of the wage gap.

The OLS regression results show that there exists a payment imbalance between males and females in the Chinese labour market and much of income inequality is related to gender, the gross gap is 39.4 percent in favour of males.

Among the major independent variables that affect wages, living in a rural area has a negative effect on income while living in coastal regions has a positive effect. Working as a full-time worker increases compensation. The results sensibly reveal that higher education level leads to higher income. Among the industries, the

Construction industry shows a large positive income reward, while Education/ Science/ Broadcasting and Government/ Social Organization shows a negation reward.

The Blinder-Oaxaca decomposition results show that the 'explained' effect is negative, meaning that women have better productivity characteristics than men. However, the results reveal that men earn more than women. The reason of the gender wage gap is similar to Canada that the "unexplained" component, especially the constant term, is positive and large. As the part that cannot be explained by differences in productive characteristics, the "unexplained" component could come from discrimination or other factors.

The contribution of women is important in the Chinese labour market. For the Chinese economy to continue to grow, the problem of the gender wage gap must be addressed. The government should improve the laws and regulation on women's rights and interests. It must advocate the concept of equality between males and females in society and create an equal environment for women.

Table 1. Mean values of the variables for the total sample, males and females			
<i>Mean values</i>	<i>Total</i>	<i>Male</i>	<i>Female</i>
<i>Mean of log wage</i>	9.868	10.026	9.632
<i>A. gender</i>			
Male	0.598	-	-
Female	0.402	-	-
<i>B.Member</i>			
Communist Party member	0.106	0.134	0.065
Non-communist	0.894	0.866	0.935
<i>C.Place of residence</i>			
Rural	0.385	0.382	0.389
Urban2	0.615	0.618	0.611
<i>D.Full-time</i>			
Full-time	0.632	0.649	0.606
Part-time	0.368	0.351	0.394
<i>E.Marital status</i>			
Married	0.841	0.833	0.854
Single	0.159	0.167	0.146
<i>F.Age</i>			
Age	40.654	41.846	38.881
<i>G.Child</i>			
Child	0.843	0.830	0.862
No child	0.157	0.170	0.138
<i>H.EDUCATION</i>			
Low	0.234	0.202	0.280
Middle	0.33	0.349	0.302
High	0.218	0.240	0.187
College	0.114	0.110	0.120
University	0.104	0.099	0.111
<i>I.Regions</i>			
Coastal Area	0.376	0.372	0.381
Central Area	0.624	0.628	0.619
<i>J.Houkou</i>			
Rural	0.565	0.567	0.586
Urban	0.435	0.433	0.414
<i>K.Industries</i>			
Manufacturing	0.134	0.142	0.121
Construction	0.049	0.073	0.012
Transportation/Post	0.053	0.076	0.017

Whole Sale/Retail/Cafeteria	0.12	0.093	0.158
Social Service	0.124	0.110	0.150
Farm/Forestry/Fishing	0.009	0.011	0.007
Mining	0.007	0.011	0.002
Electricity/Gas/Water	0.011	0.013	0.008
Education/Science/Broadcasting	0.053	0.041	0.070
Government/Social Organization	0.047	0.051	0.041
Others	0.393	0.379	0.414
<i>L.Occupation</i>			
Officials, Manager	0.063	0.074	0.049
Professional/technician	0.136	0.125	0.153
Service and sale workers	0.146	0.112	0.195
Plant and machine operators/assemblers	0.063	0.089	0.023
Others	0.592	0.600	0.580
Sample size	5587	3341	2246

Table 2. Regression results, total sample

	(1)	(2)	(3)
Gender	0.394*** (14.76)	0.423*** (20.36)	0.403*** (18.73)
Geography			
Rural		-0.280*** (-9.60)	-0.261*** (-8.90)
Coastal		0.390*** (18.50)	0.376*** (17.72)
Hukou		-0.00140 (-0.05)	0.00569 (0.21)
Personal			
Member		0.0548 (1.66)	0.0778* (2.28)
Han		0.0649 (1.74)	0.0595 (1.60)
Full-time		0.0525*** (17.84)	0.0413*** (11.32)
Age		0.0666*** (7.62)	0.0654*** (7.57)
Age2		-0.0943*** (-9.04)	-0.0916*** (-8.88)
Marriage		0.0794* (2.13)	0.0803* (2.15)
Child		0.0354 (0.85)	0.0259 (0.63)
Education (reference: low)			
Middle		0.152*** (4.94)	0.146*** (4.75)
High		0.323*** (8.91)	0.295*** (8.11)
College		0.521*** (12.43)	0.497*** (11.36)
University		0.715*** (15.38)	0.683*** (13.93)
Industry (reference: social service)			
Manufacturing			0.00535 (-0.16)
Construction			0.177***

				(-3.51)
Transportation/Post				0.0862
				(-1.77)
Whole Sale/Retail/Cafeteria				-0.025
				(-0.67)
Farm/Forestry/Fishing				-0.172
				(-1.81)
Mining				0.121
				(-1.81)
Electricity/Gas/Water				0.00476
				(-0.06)
Education/Science/Broadcasting				-0.148***
				(-3.35)
Government/Social Organization				-0.217***
				(5.10)
Others				-0.0324
				(-0.78)
Occupation (reference: other)				
Officials, Manager				0.377***
				(-9.4)
Professional/technician				0.244***
				(-7.18)
Service and sale workers				0.181***
				(-5.66)
Plant and machine operators/ assemblers				0.162***
				(0.038)
Cons	9.632***	7.777***	7.806***	
	(456.50)	(45.96)	(45.74)	
R ²	0.0383	0.4580	0.4720	
N	5587	5587	5587	

t statistics in parentheses

* p<0.10, ** p<0.05, *** p<0.01

Table 3. Regression results, without industry and occupation, males and females

	(2) Male	(3) Female
Geography		
Rural	-0.258*** (-7.34)	-0.309*** (-6.80)
Coastal	0.429*** (15.02)	0.343*** (9.97)
Hukou	-0.0213 (-0.61)	0.0448 (0.99)
Personal		
Member	0.0799* (2.01)	0.0115 (0.17)
Han	0.0927* (2.08)	0.00844 (0.15)
Full-time	0.505*** (15.38)	0.528*** (12.36)
Age	0.0594*** (5.75)	0.0806*** (4.88)
Age2	-0.0886*** (-7.35)	-0.108*** (-5.13)
Family		
Marriage	0.212*** (4.40)	-0.0973 (-1.73)
Child	0.0352 (0.65)	-0.0166 (-0.24)
Education (reference: low)		
Middle	0.123*** (3.39)	0.159*** (3.63)
High	0.260*** (6.05)	0.388*** (6.84)
College	0.430*** (7.61)	0.594*** (8.74)
University	0.605*** (9.89)	0.828*** (11.10)
Cons	8.302*** (40.96)	7.670*** (25.95)
R ²	0.4235	0.4689
N	3341	2246

t statistics in parentheses
 * p<0.10, ** p<0.05, *** p<0.01

Table 4. Regression results, with industry and occupation, males and females

	(2) Male	(3) Female
Geography		
Rural	-0.241*** (-6.86)	-0.282*** (-6.18)
Personal		
Member	0.0915* (2.23)	0.0634 (0.90)
Han	0.0893* (2.03)	0.00229 (0.04)
Full-time	0.384*** (9.16)	0.453*** (7.19)
Age	0.0580*** (5.68)	0.0789*** (4.80)
Age2	-0.0856*** (-7.17)	-0.105*** (-5.02)
Family		
Marriage	0.210*** (4.41)	-0.0978 (-1.76)
Child	0.0207 (0.38)	-0.00648 (-0.10)
Education (reference: low)		
Middle	0.113** (3.14)	0.156*** (3.58)
High	0.214*** (4.95)	0.386*** (6.82)
College	0.377*** (6.51)	0.608*** (8.68)
University	0.546*** (8.52)	0.833*** (10.52)
Coastal	0.409*** (14.28)	0.334*** (9.55)
Hukou	-0.0166 (-0.48)	0.0510 (1.13)
Industries (reference: social services)		
Manufacturing	0.0315 (0.61)	0.00847 (0.13)
Construction	0.157* (2.55)	0.467** (3.14)

Transportation/Post	0.122 -1.94	-0.0357 (-0.29)
Whole Sale/Retail/Cafeteria	-0.0282 (-0.49)	-0.0138 (-0.22)
Farm/Forestry/Fishing	-0.12 (-0.98)	-0.241 (-1.25)
Mining	0.0933 (-0.74)	0.287 (-0.87)
Electricity/Gas/Water	0.036 (-0.31)	-0.0382 (-0.21)
Education/Science/Broadcasting	-0.102 (-2.15)	-0.296** (-3.27)
Government/Social Organization	-0.151* (-2.15)	-0.296** (-3.27)
Others	-0.0203 (-0.37)	-0.0146 (-0.20)
Occupation (reference: other)		
Officials, Manager	0.399*** (7.49)	0.363*** (4.65)
Professional/technician	0.272*** (5.54)	0.196*** (3.24)
Service and sale workers	0.212*** (4.43)	0.151** (2.80)
Plant and machine operators/ assemblers	0.175*** (3.52)	0.102 (0.94)
Cons	8.315*** (40.33)	7.668*** (25.63)
R ²	0.4407	0.4824
N	3341	2246

t statistics in parentheses
* p<0.10, ** p<0.05, *** p<0.01

Table 5 Blinder-Oaxaca decomposition of the gender wage gap

	(1)	(2)
Overall		
Mean	10.03***	10.03***
ln(Wage)_Male	(6110.48)	(609.78)
Mean	9.632***	9.632***
ln(Wage)_Female	(455.72)	(454.99)
difference	0.394***	0.394***
	(14.74)	(14.72)
explained	-0.0393*	-0.0221
	(-2.18)	(-1.15)
unexplained	0.434***	0.417***
	(20.37)	(18.91)
Explained		
geography	-0.00258	-0.00241
	(-0.35)	(-0.34)
personal	-0.0386***	-0.0388***
	(-3.75)	(-4.26)
family	-0.00563*	-0.00513
	(-2.06)	(-1.09)
education	0.00753	0.00590
	(1.27)	(1.09)
industry		0.0220***
		(-3.51)
occupation		-0.00364
		(-0.60)
Unexplained		
geography	0.0252	0.0164
	(0.60)	(0.39)
personal	-0.453	-0.466
	(-1.18)	(-1.22)
family	0.308***	0.286***
	(4.45)	(4.15)
education	-0.0795	-0.105*
	(-1.89)	(-2.46)
industry		0.0108
		(-0.19)
occupation		0.0270

		(-1.14)
constant	0.632	0.647
	(1.76)	(1.78)
<hr/>		
N	5587	5587

t statistics in parentheses

* p<0.05, **p<0.01, ***p<0.001

geography: rural coastal hukou

education: middle high college university

personal: member Han full-time age age2

family: marriage child

industry: Manufacturing, Construction Transportation/post

WholeSale/Retail/CafeteriaSocial Service Farm/Forestry/Fishing

MiningElectricity/Gas/WaterEducation/Science/Broadcasting Government/Social

Organization

occupation: Officials/ Manager Professional/ Technician Service/Sale Workers Plant
and Machine Operators/ Assemblers Other

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