View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

provided by Scholarship@Western

Western University
Scholarship@Western

Centre for Human Capital and Productivity. CHCP Working Papers

Economics Working Papers Archive

2011

2011-20 Changes in the Gender Wage Gap in Urban China, 1995-2007

Shi Li

Jin Song

Follow this and additional works at: https://ir.lib.uwo.ca/economicscibc

Part of the Economics Commons

Citation of this paper:

Li, Shi, Jin Song. "Changes in the Gender Wage Gap in Urban China, 1995-2007." CIBC Centre for Human Capital and Productivity. CIBC Working Papers, 2011-20. London, ON: Department of Economics, University of Western Ontario (2011).

Paper Revised August, 2012

Changes in the Gender Wage Gap in Urban China, 1995-2007

by

LI Shi and SONG Jin

Working Paper # 2011-20 **October 2011**

CIBC Working Paper Series

Department of Economics
Social Science Centre
The University of Western Ontario
London, Ontario, N6A 5C2
Canada

This working paper is available as a downloadable pdf file on our website
http://economics.uwo.ca/centres/cibc/

ELEVEN

Changes in the Gender Wage Gap in Urban China, 1995-2007*

LI Shi and SONG Jin

I. Introduction

China has been transitioning from a planned economy to a market economy for three decades. Since the mid-1990s when the urban reforms were implemented in earnest, wage inequality has widened (Appleton et al. 2002; Knight and Song 2008). During the period of the planned economy, one of the objectives of the Chinese government that was supported ideologically by Mao was to narrow the gender wage gap. As a result, urban China boasted a smaller wage gap compared to other countries (Gustafsson and Li 2000). The economic transition has had an effect on the gender wage gap through development of the private sector and the granting of more autonomy to state-owned enterprises to hire and fire employees and to determine wages. Given the pre-labor-market discrimination against women in terms of educational attainment, female workers were more concentrated in occupations requiring unskilled workers with low human capital. With the great flow of rural migrant workers, particularly unskilled female workers, into the cities and female workers facing much more severe competition in the urban labor market, wages have been depressed and the gender wage gap has increased.

The chapter investigates changes in the gender wage gap since the mid-1990s using the household survey data collected for 1995, 2002, and 2007. It should be noted that there were two shocks to the labor market in urban China during this period. One shock was the economic reconstruction of urban enterprises, during which time a majority of the state-owned and collective enterprises were privatized or restructured. As a consequence, millions of urban workers in the state-owned and collective sectors were laid off. The number of employees in state-owned enterprises (SOEs) decreased from 112.6 million in 1995 to 71.6 million in 2002, and this number declined further to 64.2 million in 2007. At the same time, the number of employees in urban

collective enterprises decreased from 31.5 million in 1995 to 8.1 million in 2002, and 7.2 million in 2007 (NBS 2008). The shock of being laid-off affected male and female employment in different ways. At the end of 2002, compared to male laborers, female laborers had higher unemployment rates. Furthermore, there was a higher proportion of early retirees among female laborers (Li and Gustafsson 2008). This shock no doubt had different effects on male and female wage growth in urban China.

The second shock to the urban labor market was a significant increase in rural migrant workers moving to the cities due to changes in government policy with respect to rural migration. In the 1990s the government discouraged rural migration, but since 2000 obstacles to rural migration have been gradually reduced. Of course, many institutional barriers associated with the household registration (*hukou*) system remain and make it difficult for rural migrants to settle down in urban areas. With the change in migration policy, the number of rural-urban migrant workers increased significantly, from an estimated less than 80 million in 2001 to 132 million in 2006 (Li and Luo 2007). Moreover, more urban jobs and occupations opened up to rural migrant workers. But, as a result, competition increased between local workers and migrant workers in the urban labor market. This competition also affected male and female laborers differently. Since on average migrant workers are less educated and less skilled, they are more likely to compete for unskilled jobs, which are usually held by local female workers. We hypothesize that local female workers face more competition from migrant workers than their male counterparts.

Both the privatization of state-owned enterprises and the rapid growth of the private sector have contributed to the rising wage gap between male and female workers. Dong et al. (2004) provide evidence that in township and village enterprises in Shandong and Jiangsu provinces female workers have not received a return for

their work experience and they are discriminated against in terms of wage determination.

Due to the reform and restructuring of the labor market in urban China, the average wage of urban workers has steadily increased since the mid-1990s. The nominal annual wage of urban workers increased from 5,500 yuan in 1995 to 25,000 yuan in 2007, with an 11.4 percent per annum real growth rate (NBS 2008). Because the National Bureau of Statistics (NBS) does not provide information on average wages by gender, we do not know from the official data whether there has been a gender difference in the wage growth rates. However, our survey data show that wages increased by 10.4 percent per year for male workers and 9.2 percent per year for female workers.

It should noted that at the beginning of the twenty-first century the Chinese government implemented a number of laws and regulations in an attempt to safeguard the legitimate rights and interests of women in the labor market, to promote gender equality, and to enable women to play an active role in society. However, these laws and regulations have been only loosely implemented. The Law on the Protection of Women's Rights and Interests was revised in 2005 in order to further guarantee gender equality. The revised law provides that gender should not constitute a pretext for refusing to hire a woman. Meanwhile, gender equality is stipulated in the National Program for Women's Development (2001-2010). To a certain degree, these new regulations have reduced the extent of discrimination against women, but their impact on the gender wage gap remains unclear.

This chapter examines whether gender wage differences of urban local workers continued to widen during the period under study. Rural-urban migrants are not covered in our analysis. We utilize the Blinder/Oaxaca decomposition methodology to

decompose the wage differences between male and female workers into explained and unexplained components. The decomposition analysis is based on a general wage function and a quantile regression analysis. The results from the decomposition in 1995, 2002, and 2007 indicate that the gender wage gap increased significantly, particularly from 2002 to 2007, and a growing part of this gap was due to unexplained components, thereby implying rising discrimination against female workers. The decomposition results based on a quantile regression analysis indicate that the gender wage gap was greater for the low-income groups and the share of unexplained components in the gap was also greater for the low-income groups.

The chapter is structured as follows. The next section summarizes the main findings in previous studies. Section III describes the data and the differences in the basic statistics on the personal characteristics and employment structure for men and women. Section IV discusses the methodology and interprets the results of the decomposition analysis. The final section presents our conclusions.

II. Literature Review

During the period of the planned economy, the gender wage gap was not an important issue in urban China and therefore there was relatively little research on the topic. This situation continued through the early stage of the economic transition in the 1980s. In the international context the observed wage gap between male and female workers at the time was extremely small. For instance, Gustafsson and Li (2000) found that in 1988 the wage of female workers was 84 percent that of their male counterparts. This contrasts with 82 percent in Sweden and 78 percent in Canada in the early 1990s. Compared to other explanatory variables, such as the ownership structure and the economic sector and location, the gender wage gap among urban

workers was considered less important (Knight and Song 1993). However, along with the reform of public enterprises and the development of the private sector, the gender wage gap increased in favor of male workers. Between 1988 and 1995 the gap increased by 2 percent (Gustafsson and Li 2000).

After the acceleration of the urban economic reforms in the mid-1990s, both the employment system and the system of remodeling social security underwent major changes. As a result, many urban workers were laid-off and entered the ranks of the unemployed, or became off-duty workers but retained their ties with the work-unit (*xiagang*) (Li and Hong 2004; Appleton et al. 2002; Knight and Li 2006). A major impact of the increasing number of unemployed/*xiagang* workers in urban China was a decline in the female participation rate in the labor market. By the turn of the century many female workers had left the labor market to become housewives. The data from the 1995 and 2002 surveys indicate that the participation rate of urban females between the ages of 16 and 60 fell from 76 percent in 1995 to 67 percent in 2002, whereas the participation rate for males during the same period fell from 86 percent to 82 percent.[1] The female participation rate in the labor market in 2007 remained unchanged from 2002, but during the same period the male participation rate increased by 1.4 percentage points (see Table 11.1 below). In particular, there was a significant decrease in labor-market participation among less-educated female workers. As an example, the participation rate for females with a low-middle-school education decreased from 78.34 percent in 1995 to 61.90 percent in 2002 and it decreased further to 51.90 percent in 2007.

In light of the remarkable changes in the labor market and the reforms in urban enterprises that resulted in a rising gender wage-earnings gap in urban China, several studies have examined the magnitude of the gender earnings (wage) gap in the 1980s

and 1990s and its changes over time (Gustafsson and Li 2000; Kidd and Meng 2001; Liu, Meng, and Zhang 2000; Maurer-Fazio and Hughes 2002; Meng 1998; Meng and Miller 1995; Rozelle et al. 2002).

Entering the new millennium, the Chinese government attempted to implement a new development strategy that stressed balanced development between the urban and rural areas to reduce regional disparities and to narrow income/wage inequalities. However, the rising gender wage gap was not a policy priority. During the last decade there has been a notable widening in the gender gap (Démurger, Fournier, and Chen 2007). Li and Gustafsson (2008) indicate that between 1995 and 2002, as more women were laid-off, the gender income gap increased significantly. Chi and Li (2008) note that the average earnings gap between male and female workers increased considerably from 1996 to 2004.

Studies on the gender wage gap in China apply decomposition analysis to the Chinese data. Wang and Cai (2008) found that a large part of the gender wage gap was due to discrimination. These findings are based on survey data from five large cities in 2001. Chi and Li (2008), using 1987, 1996, and 2004 data, show that the gender earnings differential in urban China increased across the earnings distribution and this increase was greater in the lower quantiles. Work by Zhang et al. (2008) support these findings.

Most studies that investigate the gender wage/earnings gap during the pre-2000 period utilize data from relatively few cities. The few studies using data collected after 2000 indicate a growing gender wage/earnings gap in urban China, with discrimination playing an increasing role in this gap. However, many questions about the gender wage-earnings gap remain unanswered.

III. Research Questions and Data Description

We focus on the following research questions. Against the backdrop of economic transition and changes in the government development strategy, how has the gender wage gap changed in urban China during the period of our study? Has the gap become wider or narrower over time? If the former, what were the driving forces behind such a change? Did rising discrimination against women play a role? If so, which group of female workers faced the most discrimination? Do female workers at the low end of the wage scale suffer more discrimination than others?

To answer these questions, we compare the gender wage gap in urban China during two periods, 1995-2002 and 2002-2007. We also decompose the gap into two parts, explained and unexplained, for the three survey years and for changes in the gap between the two periods.

The data come from three series of the urban household income survey conducted by the China Household Income Project (CHIP) in 1995, 2002, and 2007. To be comparable, the household samples in the three surveys were selected from the same provinces. The common provinces covered by the surveys are Beijing, Shanxi, Liaoning, Jiangsu, Anhui, Guangdong, Henan, Hubei, Sichuan, Yunnan, and Gansu. These provinces were initially selected to represent five regions (Li and Luo 2007), i.e., Beijing to represent the provincial-level metropolitan cities,[2] Jiangsu and Guangdong to represent the eastern region, Liaoning the northeastern region, Shanxi, Anhui, Henan, and Hubei the central region, Sichuan and Yunnan the southwestern region, and Gansu the northwestern region.[3]

The observations in our analysis are individual urban local workers (employees), thus we exclude the unemployed and self-employed, rural migrant workers, and owners of private enterprises. The wage variable is defined to include the wage and

salary, bonuses, and cash subsidies received by workers. The wages in 2002 and 2007 are deflated using 1995 prices.

Table 11.1 provides basic information about labor-market participation and employment and unemployment during the three survey years. As indicated in the table, the share of males and females between the ages of 16 and 60 differed by about 3 percentage points during the first period, but remained relatively stable during the second period.[4] There was also a rising supply of urban laborers between the first and second periods. In response, the participation rate in the urban labor force decreased considerably, resulting in a rising unemployment rate. For all laborers, the participation rate dropped by 6.6 percentage points. Although the participation of males decreased by less than 5 percentage points, there was a sharp fall of over 7 percentage points for females. Female participation went up slightly in 2007 compared to 2002.

Due to the policy of laying off workers and the rise in the supply of labor, the real unemployment rate of urban workers increased dramatically, from 3 percent in 1995 to 8 percent in 2002 for male workers and from 4 percent to 13 percent for female workers, as shown in Table 11.1. The unemployment rate declined from 2002 to 2007, but the rate was still higher in 2007 compared to 1995.[5] Beginning in the mid-1990s, gender differences in unemployment became more significant. For example, the unemployment rate was 59 percent higher for female workers than for male workers in 2002 but 80 percent higher in 2007.

Table 11.1 also provides information about the composition of the wage-earners and the self-employed. Along with the development of the non-public sector and the privatization and restructuring of public enterprises, the number of self-employed increased during the period of our analysis. As indicated by the data, the proportion of

self-employed among all employees increased over time, from less than 2 percent in 1995, to 4.7 percent in 2002, and further to 6.6 percent in 2007. It should be noted that the data may underestimate the share of self-employed due to a sampling bias.

<Table 11.1 about here>

Table 11.2 shows the monthly wages of male and female workers and the gender wage ratios for all the observations and for the various worker groups in 1995, 2002, and 2007. On average, female wages as a percentage of male wages decreased over time, from 84 percent in 1995 to 82 percent in 2002 and they dropped further to 74 percent in 2007. The data thus indicate a sharper drop in the relative wages of female workers during the second period than during the first period. To a certain extent, this drop can be attributed to competition with rural migrant workers, whose number increased rapidly during the second period.

<Table 11.2 about here>

Examining the gender wage ratio by type of worker, we find that it increased among almost all groups. Comparing the gender wage gap in 2007 to that in 1995, for instance, among the nine age groups, there was a decline in the ratio of female to male wages in seven of the groups (see Table 11.2); among twelve sectors, ten sectors showed a decline in the ratio; and among the eleven provinces, there was a decline in nine provinces. Because we are interested in changes in the relationship between educational attainment and the gender wage gap, we also provide the gender wage gap for worker groups with different levels of education. The gender wage ratios (females/males) decreased in the education groups during the period under study. However, during the first period we find a sharper decline among those with a lower level of education. For example, between 1995 and 2002 the gender wage ratio

declined by 13 percentage points for those who had less than a primary-school education, but only by 1 percentage point for those with 4 years of college. The opposite occurred between 2002 and 2007. The corresponding figures are 1 and 11 percentage points. Thus, assuming that manual workers have less education than professionals, the gender wage ratio declined more among manual workers from 1995 to 2002 and more among professionals from 2002 to 2007. Moreover, on average, among those with more education in state-owned firms as opposed to private firms, the drop in the gender wage ratio was more significant among those in private firms, as also indicated in Table 11.2.

IV. Methodology

We use the method originally proposed by Oaxaca (1973) to decompose the gender wage gap in one year. The decomposition method is presented as follows, given average wage/earnings for males as $\boldsymbol{Y}_{m,t}$ and for females as $\boldsymbol{Y}_{f,t}$.

$$\boldsymbol{Y}_{m,t} - \boldsymbol{Y}_{f,t} = \boldsymbol{\beta}_{m,t}\boldsymbol{X}_{m,t} - \boldsymbol{\beta}_{f,t}\boldsymbol{X}_{f,t} \quad (1)$$

where X is the vector of the explanatory variables adopted in the income function and β is the vector of the estimates of the coefficients of the explanatory variables. The subscripts *m* and *f* here refer to the male and female groups respectively.

The difference ($\boldsymbol{Y}_{m,t} - \boldsymbol{Y}_{f,t}$) can be decomposed into two components, i.e.,

$$\boldsymbol{Y}_{m,t} - \boldsymbol{Y}_{f,t} = \boldsymbol{\beta}_{m,t}(\boldsymbol{X}_{m,t} - \boldsymbol{X}_{f,t}) + \boldsymbol{X}_{f,t}(\boldsymbol{\beta}_{m,t} - \boldsymbol{\beta}_{f,t}) \quad (2)$$

In (2) the component $\boldsymbol{\beta}_{m,t}(\boldsymbol{X}_{m,t} - \boldsymbol{X}_{f,t})$, attributed to differences in personal and employment characteristics between males and females, is usually interpreted as explained, whereas the component $\boldsymbol{X}_{f,t}(\boldsymbol{\beta}_{m,t} - \boldsymbol{\beta}_{f,t})$, attributed to differences in the

coefficients of wage/earnings functions between males and females, is commonly regarded as unexplained, that is, attributable to discrimination.[6]

To decompose changes in the gender wage/earnings gap over time, the following formula can be used:

$$\triangle \boldsymbol{Y}_{t+1} - \triangle \boldsymbol{Y}_t = \boldsymbol{\beta}_{m,t} (\triangle \boldsymbol{X}_{t+1} - \triangle \boldsymbol{X}_t) + \triangle \boldsymbol{X}_{t+1} (\boldsymbol{\beta}_{m,t+1} - \boldsymbol{\beta}_{m,t}) + \boldsymbol{X}_{f,t} (\triangle \boldsymbol{\beta}_{t+1} - \triangle \boldsymbol{\beta}_t) + \triangle \boldsymbol{\beta}_{t+1} (\boldsymbol{X}_{f,t+1} - \boldsymbol{X}_{f,t}) \quad (3)$$

where $\triangle \boldsymbol{Y}_{t+1}$ and $\triangle \boldsymbol{Y}_t$ refer to the gender income gaps in time t+1 and time t, and the gender gaps for the characteristics and coefficients in times t and t+1 are given by

$$\triangle \boldsymbol{X}_t = \boldsymbol{X}_{m,t} - \boldsymbol{X}_{f,t}, \quad \triangle \boldsymbol{X}_{t+1} = \boldsymbol{X}_{m,t+1} - \boldsymbol{X}_{f,t+1}, \triangle \boldsymbol{\beta}_t = \boldsymbol{\beta}_{m,t} - \boldsymbol{\beta}_{f,t}, \text{ and } \triangle \boldsymbol{\beta}_{t+1} = \boldsymbol{\beta}_{m,t+1} - \boldsymbol{\beta}_{f,t+1} \quad (4)$$

It is clear that formula (3) has four parts. The first part $\boldsymbol{\beta}_{m,t} (\triangle \boldsymbol{X}_{t+1} - \triangle \boldsymbol{X}_t)$ picks up the change in the gap due to changes in endowments of the gender differences between two time points. The second part, $\triangle \boldsymbol{X}_{t+1} (\boldsymbol{\beta}_{m,t+1} - \boldsymbol{\beta}_{m,t})$, picks up the changes in the gap due to changes in the coefficients of the male wages/earnings functions between two time points. The third part, $\boldsymbol{X}_{f,t} (\triangle \boldsymbol{\beta}_{t+1} - \triangle \boldsymbol{\beta}_t)$, captures the changes in the gap due to changes in the gender differences of the coefficients of the wages/earnings functions between two time points. The fourth part, $\triangle \boldsymbol{\beta}_{t+1} (\boldsymbol{X}_{f,t+1} - \boldsymbol{X}_{f,t})$, captures the changes in the gap due to changes in the endowments of females between two time points.

The weakness of this method is that it is not able to capture the effects of differences in the wage distribution between males and females on the gender income gap. In a segmented labor market, like that in China, it is more likely that female

workers with low levels of education, who are unskilled, and who are employed in the informal sectors face more serious discrimination. To address this issue, we decompose the gender wage gap based on a quantile regression analysis, decomposing the gender gap at each quantile point.

V. Results and Interpretations

A. Changes in the Gender Wage Gap over Time

To determine whether the gender wage gap was due purely to gender, we first conducted a regression analysis in which gender was treated as a dummy variable and with a number of control variables, such as marital status, education attainment, ownership of the work-unit, region, and so on. Because occupation and industry segregation between males and females has been discussed extensively in recent years, we needed to consider whether the occupation and industry variables should be included in the wage equations. As discussed in other studies, the inclusion of occupation and industry may underestimate the gender wage gap if occupational and industrial segregation exist between male and female workers.[7] Therefore, we provide the results for the regression analyses both controlling for occupation and industry and not. Table 11.3 summarizes the regression results for 1995, 2002, and 2007. It is obvious that the gender wage gap increased over time. As shown in the table, compared to the wages of female workers, the wages of male workers were 10.5 percent higher in 1995, 17.4 percent higher in 2002, and almost 29.7 percent higher in 2007.[8] The results from the regression using the pooled data show that on average the wages of males were 18.5 percent higher than those of females during the 1995-2007 period. It is also apparent that the gender gap widened considerably during the second period. Moreover, by excluding the occupation and industry variables the contribution

of the male dummy to the gender wage gap increased. This increase was especially significant in 2002. However, in 2007 the difference between the coefficients with and without controlling for the occupation and industry variables declined, which may indicate an improvement in segregation.

<Table 11.3 about here>

As seen in Appendix Table 11.A3, the contribution of the age variable changed dramatically over time. Figure 11.1a and Figure 11.1b illustrate the changes in the age profile of Lnwage for male and female workers during the three years. In 1995, the age-wage profile for female workers displays a pattern that is similar to that in most market economies. Wages increase with age, reach a peak between ages 41 and 45, and decline thereafter until retirement age. However, the age-wage profile for male workers displays wages rising increasingly with age and an even sharper increase with age until retirement. This is why the age variable contributed positively to the gender wage gap in 1995. Empirically, age is commonly regarded as indicative of work experience. The age-wage profile of female workers became more similar to that of male workers in 2002 (see Figure 11.1b), implying there was a convergence of returns to work experience from 1995 to 2002. Moreover, the returns to work experience increase more significantly for female workers compared to male workers during the 2002-7 period (see Figure 11.1c). This is the major reason for the declining role of the age variable in contributing to the gender wage gap.

<Figure 11.1 about here>

Another important variable contributing to the rising gender wage gap is the ownership of the employment sector. Figure 11.2 shows the gender wage gap among workers employed in sectors of different ownership during the three years. In 1995 female workers were paid relatively better in state-owned, foreign-invested,

joint-venture, and other ownership sectors compared to their male counterparts. However, their relative advantage gradually declined thereafter. With the exception of the urban collective sector, male workers in sectors of other ownerships, such as SOEs, experienced more rapid wage growth than their female counterparts, especially in 2007. As a result, gender differences based on employment sector increased over time, contributing to the rising share of the gender wage gap due to discrimination against female workers.

<Figure 11.2 about here>

B. Results from the Decomposition Analysis

To examine which personal and employment characteristics are important determinants of the gender wage gap, we carried out estimations of the wage equations for male and female workers separately. The results from the regression analysis can be found in Appendix Table 11A.3. With the results from the regression analysis, we decompose the gender wage gap into different components, partly due to gender differences in endowments and partly due to gender differences in the coefficients derived from the regression analysis following the Oaxaca (1973) approach.

Table 11.4 provides the decomposition results for 1995, 2002, and 2007. The results indicate that the raw gender wage gap increased from 1995 to 2002 and even more sharply from 2002 to 2007. It is clear that the increase in the gender wage gap was not due to greater differences in endowments since the contribution of the endowments declined over time. As shown in Table 11.4, the share of the wage gap explained by differences in the endowments decreased from 48 percent to 31 percent between 1995 and 2002, and further to 22 percent in 2007. Meanwhile, the share of the wage gap due to differences in the coefficients increased from 52 percent in 1995

to 69 percent in 2002 and to 78 percent in 2007. Clearly, the importance of the unexplained portion of the gender wage gap increased markedly.

<Table 11.4 about here>

If the gender wage gap due to differences in coefficients is interpreted to be the outcome of discrimination, Table 11.4 clearly shows that the part of gender wage gap explained by discrimination as a percentage of the total gap increased significantly over time.

C. Results from the Quantile Regression Analysis

A large number of rural migrant workers flowing into cities, particularly during the second period under study, would increase competition for jobs in the urban labor market, making it difficult for local workers to find jobs, or would lead to a decline in the wages of urban workers with the same endowments as the migrant workers. However, it is not clear that the shock of rural migration had the same impact on male workers as it did on female workers. To determine gender differences in terms of the impact of rural migration on the urban labor market, we conducted a quantile regression analysis using the data from the three years.

Table 11.5 presents the results from a quantile regression analysis for 1995, 2002, and 2007. It is apparent that the raw wage gap between male and female workers rose for all the wage groups from 1995 to 2002 and even further to 2007. At the same time, the gap became larger for the lower wage groups compared to the higher wage groups over the three years, as shown in Figure 11.3a. The gender wage gap due to discrimination (or the unexplained part) as a percentage of the raw gap is larger for the lowest wage group than it is for the highest wage group in all three years. Moreover, the discrimination share increases continuously over time, especially for the lower income group, as shown in Figure 11.3b. Therefore, the results indicate that

discrimination against female workers was even more significant among lower wage-earners and it grew over time. It is obvious that, on the one hand, the share of discrimination augmented over time for all quantile groups, and, on the other, the share increased more rapidly among the lower wage groups than among the higher wage groups.

<Table 11.5 about here>

<Figure 11.3 about here>

D. Results of the Dynamic Analysis

To compare the changes in the gender wage gap between the 1995-2002 period and the 2002-2007 period, we used Formula (3) in Section III to decompose the changes in the gender wage gap during each period into four parts. The results in Table 11.6 present the relative contributions of each part to the changes in the gender wage gap.

Table 11.6 indicates that the change in the gender wage gap during 1995-2002 can be attributed primarily to the explanatory variables, such as occupation, ownership, and industry. It is clear that the changes in the endowments of females (part [4]) and the changes in the gender differences of the coefficients of the wage/earnings functions (part [3]) are the two largest shares in explaining the changes in the gender gap during 1995-2002. Comparing the second period to the first period, the changes in the gender differences of the coefficients of the wage/earnings functions (part [3]) became the most important contributor. This implies that the gender differences in the coefficients in the wage functions became greater during the second period than they were during the first period.

<Table 11.6 about here>

V. Conclusions

The wage gap between males and females has widened since the mid-1990s. Most previous studies, focusing on the 1990s, provide empirical findings either at one point in time or for a short period. This chapter presents an updated analysis of the changes in the gender wage gap in urban China since the mid-1990s, using data from the 1995, 2002, and 2007 CHIP surveys. We find that the gender wage gap increased significantly, particularly during the 2002-7 period and this increase was largely due to unexplained components, thereby implying that discrimination against female workers in the urban labor market in China was rising. To determine whether females at the low end of the labor market faced more discrimination, we conducted a decomposition analysis based on a quantile regression analysis. The results indicate that the gender wage gap is greater for the low-wage groups and the share of the unexplained components in the gap is also greater for the low-wage groups. It is hypothesized that, with the inflow of rural migrant workers, unskilled and less-educated urban workers have faced greater competitive pressures in the labor market. But this competition has different implications for male and female workers; wage growth is more significantly depressed for female workers than it is for male workers, particularly female workers who are unskilled and less-educated.

.

References

Appleton, S., J. Knight, L. Song, and Q. Xia (2002), "Labor Retrenchment in China: Determinants and Consequences," *China Economic Review*, 13(2-3), 252-275.

Blau, F.D. and L.M. Kahn (2003), "Understanding International Differences in the Gender Pay Gap," *Journal of Labor Economics*, 21(3), 106-144.

Blinder, A. S. (1973), "Wage Discrimination: Reduced Form and Structural Estimates," *Journal of Human Resources*, 8(4), 436-455.

Chi, W. and B. Li (2008), "Glass Ceiling or Sticky Floor? Examining the Gender Earnings Differential Across the Earnings Distribution in Urban China, 1987–2004," *Journal of Comparative Economics*, 36(2), 243–263.

Démurger, S., M. Fournier, and Y. Chen (2007), "The Evolution of Gender Earnings Gaps and Discrimination in Urban China, 1988–95," *Developing Economics*, 45(1), 97–121.

Dong, X. and P. Bowles (2002), "Segmentation and Discrimination in China's Emerging Industrial Labor Market," *China Economic Review*, 13(2-3), 170-196.

Dong, X., F. MacPhail, P. Bowles, and S. P. Ho (2004), "Gender Segmentation at Work in China's Privatized Rural Industry: Some Evidence from Shandong and Jiangsu," *World Development*, 32(6), 979-998.

Gustafsson, B. and S. Li (2000), "Economic Transformation and the Gender Earnings Gap in Urban China," *Journal of Population Economics*, 13(2), 305-339.

Kidd, M.P. and X. Meng (2001), "The Chinese State Enterprise Sector: Labour Market Reform and the Impact on Male-Female Wage Structure," *Asian Economic Journal*, 15(4), 405-423.

Knight, J. and S. Li (2006), "Unemployment Duration and Earnings of Re-employed Workers in Urban China," *China Economic Review*, 17(2), 103-199.

Knight, J. and L. Song (1993), "Why Urban Wages Differ in China," in K. Griffin and R. Zhao, eds., *The Distribution of Income in China*, 221-242, Basingstoke: Macmillan.

Knight, J. and L. Song (2008), "China's Emerging Urban Wage Structure, 1995-2002," in B.A. Gustafsson, S. Li, and T. Sicular, eds., *Income Inequality and Public Policy in China*, 221-242, New York: Cambridge University Press.

Li, S. and B. Gustafsson (2008), "Unemployment, Earlier Retirement, and Changes in the Gender Income Gap in Urban China, 1995-2002," in B.A. Gustafsson, S. Li, and T. Sicular, eds., *Income Inequality and Public Policy in China*, 243-266, New York: Cambridge University Press.

Li, S. and C. Luo (2007), "Zhongguo chengxiang jumin shouru chaju de chongxin

guji" (Re-estimating the Income Gap between Urban and Rural Households in China), *Beijing daxue xue bao (Zhexue shehui kexue ban)*, no. 2, 111-120

Li, S. and Z. Hong, eds. (2004), *Jingji zhuanxing de daijia: Zhongguo chengshi shiye pinkun, shouru chaju de jingyan fenxi* (Economic Policy Analysis: China's Experience with Urban Unemployment, Poverty, and Income Inequality), Beijing: Zhongguo caizheng jingji chubanshe.

Liu, P.W., X. Meng, and J. Zhang (2000), "Sectoral Gender Wage Differentials and Discrimination in the Transitional Chinese Economy," *Journal of Population Economics*, 13(2), 331-352.

Maurer-Fazio, M. and J. Hughes (2002), "The Effects of Market Liberalization on the Relative Earnings of Chinese Women," *Journal of Comparative Economics*, 30(4), 709-731.

Meng, X. (1998), "Male-Female Wage Determination and Gender Wage Discrimination in China's Rural Industrial Sector," *Labour Economics*, 5(1), 67-89.

Meng, X. and P. Miller (1995), "Occupational Segregation and its Impact on Gender Wage Discrimination in China's Rural Industrial Sector," *Oxford Economic Papers*, 47(1), 136-155.

National Bureau of Statistics (NBS) (various years), *Zhongguo tongji nianjian* (China Statistical Yearbook), Beijing: Zhongguo tongji chubanshe.

Oaxaca, R. (1973), "Male-Female Wage Differentials in Urban Labor Markets," *International Economic Review*, 14(13), 693-709.

Rozelle, S., X. Dong, L. Zhang, and A. Mason (2002), "Gender Wage Gaps in Post-reform Rural China," *Pacific Economic Review*, 7(1), 157-179.

Wang, M. and F. Cai (2008), "Gender Earnings Differential in Urban China," *Revie*w *of Development Economics*, 12(2), 442-454.

Zhang, J., J. Han, P.W. Liu, and Y. Zhao (2008), "Trends in the Gender Earnings Differential in Urban China, 1988-2004," *Industrial & Labor Relations Review*, 61(2), 224-243.

Table 11.1. *Labor-force participation and unemployment*

	1995			2002			2007		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
Proportion of those between the ages of 16 and 60									
	71.6	70.58	72.56	74.61	73.91	75.28	74.77	73.55	75.95
Labor-force participation (%)									
	80.93	86.28	75.8	74.32	81.89	67.06	74.97	83.21	67.17
Unemployment rate (%)									
	3.26	2.93	3.62	10.58	8.32	13.22	7.15	5.23	9.42
Composition of the labor force (%)									
Employed	78.29	83.75	73.05	66.46	75.08	58.19	69.61	78.86	60.84
Unemployed	2.64	2.53	2.75	7.86	6.82	8.87	5.36	4.35	6.33
Students	7.69	7.9	7.49	9.65	9.76	9.55	9.7	10.36	9.08
Retired	8.94	5.02	12.7	12.33	7.01	17.43	11.97	5.7	17.91
Housewives	1.55	0.11	2.94	2.3	0.24	4.29	2.27	0.21	4.23
Others	0.89	0.7	1.07	0.92	0.69	1.13	1.01	0.44	1.54
Types of employment (%)									
Wage employment	98.42	98.37	98.48	95.32	95.1	95.59	93.37	93.08	93.72
Self-employment and others	1.58	1.63	1.52	4.68	4.9	4.41	6.63	6.92	6.28

Source: CHIP urban household data, 1995, 2002, and 2007.

Table 11.2. *Wage structure and the gender wage gap in urban China, 1995, 2002, and 2007*

	1995			2002			2007		
	Male	Female	F/M	Male	Female	F/M	Male	Female	F/M
Real monthly wage	520.12	436.0	0.84	953.73	779.33	0.82	1705.84	1259.59	0.74
Age group									
16-20	266.39	252.83	0.95	327.98	340.95	1.04	723.29	494.32	0.68
21-25	360.24	317.57	0.88	655.01	616.73	0.94	1106.41	1076.06	0.97
26-30	402.89	382.53	0.95	796.87	663.12	0.83	1501.02	1283.6	0.86
31-35	478.06	410.82	0.86	889.15	785.41	0.88	1752.67	1334.44	0.76
36-40	516.08	470.37	0.91	962.11	794.99	0.83	1849.38	1260.78	0.68
41-45	563.47	483.59	0.86	1006.65	810.82	0.81	1815.88	1189.04	0.65
46-50	585.93	487.68	0.83	1009.4	859.37	0.85	1753.83	1277.87	0.73
51-55	624.11	503.77	0.81	1035.93	866.86	0.84	1696	1586.58	0.94
56-60	661.89	442.11	0.67	1068.27	619.37	0.58	1628.9	868.74	0.53
Minority groups									
Han	521.85	437.53	0.84	954.46	776.37	0.81	1712.86	1262.6	0.74
Minority	480.7	402.18	0.84	956.4	879.5	0.92	1491.58	1179.24	0.79
Marital status									
Married	542.57	449.71	0.83	985.31	797.97	0.81	1767.03	1268.85	0.72
Single	360.93	322.85	0.89	706.53	634.78	0.9	1232.47	1180.11	0.96
Others	426	448.4	1.05	720.09	807.94	1.12	972.42	1275.98	1.31
Educational attainment									
Primary and less	469.46	376.83	0.8	720.3	481.63	0.67	989.8	657.93	0.66
Middle school	486.28	394.3	0.81	768.75	561.51	0.73	1169.87	776.87	0.66
High school	494.11	416.4	0.84	869.48	727.36	0.84	1445.03	1047	0.72
Professional	526.5	480.4	0.91	918.73	843.63	0.92	1536.21	1179.12	0.77
2-year college	552.63	514.17	0.93	1088.85	938.33	0.86	1914.41	1461.52	0.76
4-year college	631.3	557.87	0.88	1337.57	1163.47	0.87	2512.74	1904.54	0.76
Ownership									
State-owned	530.06	456.7	0.86	1018.53	879.9	0.86	1887.58	1456.06	0.77
Collective	421.55	335.35	0.8	681.36	550.97	0.81	1365.12	1183.36	0.87
Joint-venture	679.96	642.16	0.94	1230.82	930.11	0.76	1701.03	1264.13	0.74
Private	525.03	520.57	0.99	668.33	461.21	0.69	1137.77	827.65	0.73
Other	532.91	447.81	0.84	853.6	637.57	0.75	902.5	676.21	0.75
Occupation									
Office worker	496.17	440.93	0.89	975.95	861.41	0.88	1845.5	1382.54	0.75
Office manager	619.31	585.83	0.95	1237.25	1175.85	0.95	2380.25	1693.08	0.71

Professional	526.63	466.65	0.89	961.08	907.69	0.94	2091.32	1711.63	0.82
Manual worker	414.14	356.52	0.86	666.94	520.11	0.78	1270.73	899.47	0.71
Other	443.42	376.52	0.85	677.46	462.11	0.68	1239.69	779.64	0.63
Industry									
Manufacturing	491.78	403.54	0.82	808.58	680.58	0.84	1460.33	1092.62	0.75
Agriculture	543.37	432.14	0.8	898.59	820.32	0.91	1400.95	1342.19	0.96
Mining	533.54	443.64	0.83	701.72	580.4	0.83	1708.53	1090.42	0.64
Construction	561.65	418.13	0.74	945.35	810.26	0.86	1670.13	1152.55	0.69
Transportation and	581.34	463.53	0.8	977.43	864.42	0.88	1622.09	1290.74	0.80
Commerce	477.05	387.84	0.81	730.76	612.27	0.84	1281.06	918.1	0.72
Public Utilities	560.78	428.74	0.76	931.78	658.06	0.71	1486.74	1041.53	0.70
Finance and	572.2	521.78	0.91	1172.92	894.74	0.76	2006.57	1632.8	0.81
Education and	582.12	496.28	0.85	1227.12	963.29	0.78	2013.93	1673.35	0.83
Health and Social	564.47	520.61	0.92	1142.75	1025.38	0.9	1787.62	1487.99	0.83
Scientific	619.34	519.54	0.84	1298.38	1308.8	1.01	2321.07	1566.73	0.68
Government	514.47	491.19	0.95	1102.25	954.5	0.87	2166.65	1510.34	0.7
Province									
Beijing	662.94	574.34	0.87	1329.38	1031.53	0.78	2341.99	1888.47	0.81
Shanxi	432.13	320.8	0.74	806.14	651.47	0.81	1394.83	1063.91	0.76
Liaoning	478.47	393.83	0.82	887.18	643.5	0.73	1310.72	833.61	0.64
Jiangsu	566.76	480.92	0.85	1011.31	798.93	0.79	2174.11	1544.7	0.71
Anhui	429.2	335.63	0.78	826.13	619.13	0.75	1427.15	953.75	0.67
Henan	400.95	321.34	0.8	756.23	575.22	0.76	1227.6	999.79	0.81
Hubei	479.26	430.86	0.9	814.96	674.47	0.83	1617.76	1076.59	0.67
Guangdong	921.55	781.49	0.85	1564.54	1332.93	0.85	2649.59	1822.7	0.69
Sichuan	480.93	408.4	0.85	804.65	681.84	0.85	1352.98	1142.82	0.84
Yunnan	485.65	426.4	0.88	911.68	807.28	0.89	1186.28	1045.16	0.88
Gansu	392.23	320.41	0.82	805.04	627.83	0.78	1175.41	828.53	0.7

Source: CHIP urban household data, 1995, 2002, and 2007.

Table 11.3. *Regression analysis on the gender wage gap in urban China*

LnWage	1995		2002		2007		Pooled sample	
	IO	NIO	IO	NIO	IO	NIO	IO	NIO
Male	0.10	0.12	0.16	0.20	0.26	0.27	0.17	0.19
	(10.15)**	(12.84)**	(12.03)**	(15.16)**	(20.87)**	(22.18)**	(24.36)**	(28.16)**
2007							0.47	0.42
							(53.06)**	(49.03)**
2002							-0.52	-0.52
							(60.37)**	(61.71)**
Constant	4.47	4.52	4.80	4.85	5.14	5.13	4.93	4.96
Observations	(98.39)**	(104.95)**	(54.38)**	(54.14)**	(51.88)**	(51.44)**	(125.03)**	(128.94)**
R-squared	0.37		0.35		0.43		0.54	

Source: CHIP urban household data, 1995, 2002, and 2007.

Notes:

1.) The table is derived from the wage functions with a number of control variables. Detailed results can be found in the Appendix Table 11A.2.

2.) "IO" and "NIO" refer to the regressions with and without controlling for the industry and occupation dummies respectively.

Table 11.4. *Oaxaca's decomposition analysis for the gender wage gap, 1995, 2002, and 2007*

	1995	**2002**	**2007**
Raw differential (R) {E+C}:	19.5	24.1	32
-due to endowments (E):	9.4	7.5	7.1
-due to coefficients (C)	10.1	16.7	24.9
Endowments as % total (E/R):	48	31	22.3
Discrimination as % total (D/R):	52	69	77.7

Source: CHIP urban household data, 1995, 2002, and 2007.
Note: The numbers in the first three rows indicate what percent the wages of male workers are higher than those of female workers.

Table 11.5. *Decomposition results from the quantile regression analysis*

	10th	25th	50th	75th	90th
1995					
Raw differential (R) {E+C}:	22.4	18.7	17.5	16.7	17.2
- due to endowments (E):	12.4	9.8	8.7	8.3	7.7
- due to coefficients (C):	10.1	8.9	8.7	8.4	9.5
Endowments as % total (E/R):	55.4	52.4	49.7	49.7	44.8
Discrimination as % total (D/R):	45.1	47.6	49.7	50.3	55.2
2002					
Raw differential (R) {E+C}:	29.2	26.6	23.4	22	18.1
- due to endowments (E):	9.8	8.5	8.0	7.4	6.6
- due to coefficients (C):	19.4	18.1	15.5	14.6	11.4
Endowments as % total (E/R):	33.6	32.0	34.2	33.6	36.5
Discrimination as % total (D/R):	66.4	68.0	66.2	66.4	63.5
2007					
Raw differential (R) {E+C+U}:	35.2	34	33	31	28.2
- due to endowments (E):	7.4	6.7	7.2	8.3	7.6
- due to coefficients (C):	27.9	27.3	25.8	22.7	20.5
Endowments as % total (E/R):	20.7	19.7	21.8	26.8	27.3
Discrimination as % total (D/R):	79.3	80.3	78.2	73.2	72.7

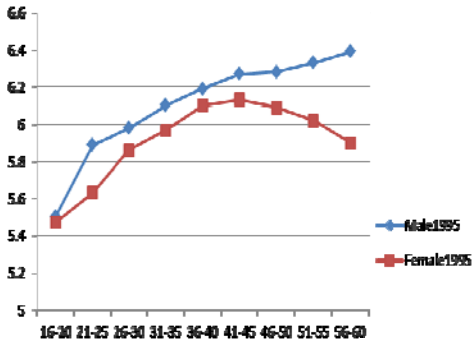
Source: CHIP urban household data, 1995, 2002, and 2007.
Note: The numbers in the first five rows for each year panel are the percentages of which the wages of male workers are higher than those of female workers.

Table 11.6. *Decomposition results for changes in the gender wage gap*

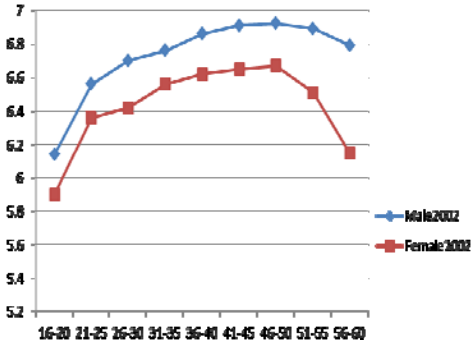
	Total	(1)	(2)	(3)	(4)
	ΔYt+1–ΔYt	bm,t(ΔXt+1 –ΔXt)	ΔXt+1(bm,t+1 –bm,t)	Xf,t(Δbt+1 –Δbt)	Δbt+1(Xf,t+1 –Xf,t)
1995-2002					
	0.05	-0.01	0.00	0.03	0.03
%	100.00	-20.26	-9.75	60.28	69.72
2002-2007					
	0.07	-0.05	0.04	0.08	0.01
%	100.00	-63.47	52.30	104.11	7.07

Source: CHIP urban household data 1995, 2002 and 2007.

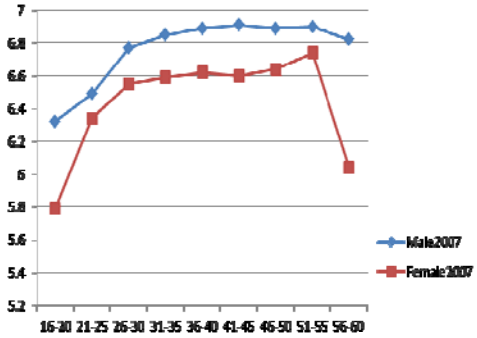
Figure 11.1 Wage-Age Profile for Male and Female Workers, 1995, 2002, and 2007



(a) 1995



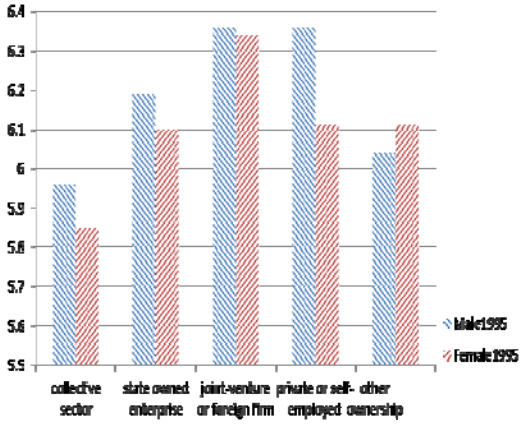
(b) 2002



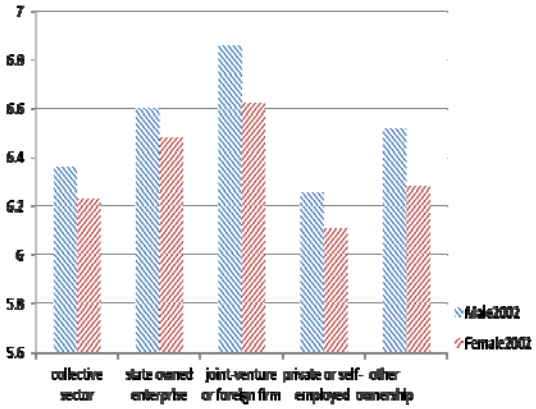
(c) 2007

Note: The figures are drawn based on the predicted wages for an "average" man and "average" woman, i.e., with the most common characteristics for each of the variables except age.

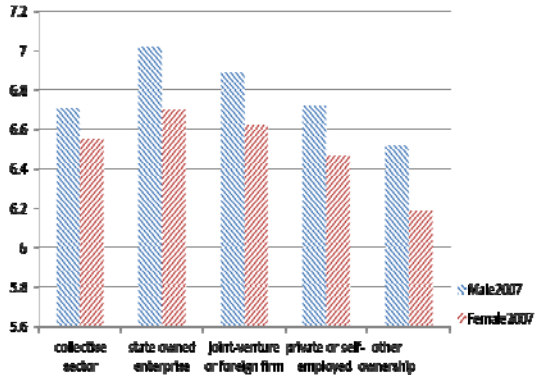
Figure 11.2 Lnwage Gap Between Genders among Ownerships, 1995, 2002, and 2007



(a) 1995



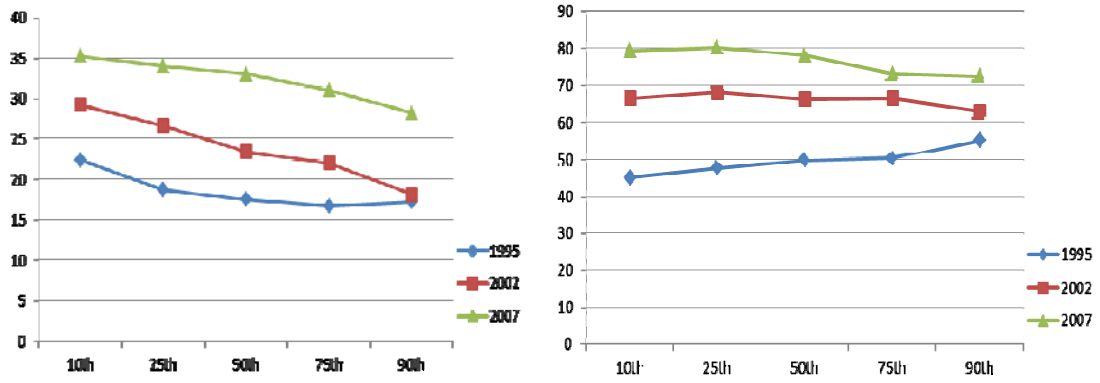
(b) 2002



(c) 2007

Note: The figures are drawn based on the predicted wages for an "average" man and "average" woman, i.e., with the most common characteristics for each of the variables except the ownership of their work-unit.

Figure 11.3 Gender Wage Differential Resulting from the Quantile Analysis, 1995, 2002, and 2007



(a) Raw difference (b) Share of discrimination

Note: The figures are drawn with the data from Table 11.5.

Appendix

Table 11A.1. *Proportion of sample in urban China, 1995, 2002, and 2007*

	1995		2002		2007	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
Sample as a percentage of total	100	100	100	100	100	100
Age group						
16-20	1.97	2.63	0.65	0.94	0.48	0.45
21-25	8.53	9.68	5.13	7.59	5.23	7.38
26-30	9.49	11.95	6.97	9.47	7.99	11.04
31-35	14.07	16.22	13.05	17.19	10.68	15.83
36-40	17.97	21.01	18.48	21.89	16.58	21.42
41-45	18.78	21.66	16.32	19.79	20.79	24.03
46-50	13.44	11.03	20.67	16.78	15.52	14.04
51-55	9.51	4.52	13.62	5.42	16.17	5.47
56-60	6.25	1.29	5.11	0.94	6.54	0.32
Minority group						
Han	95.78	95.72	96.07	95.89	96.83	96.39
Minority	4.22	4.28	3.93	4.11	3.17	3.61
Marital status						
Married	86.9	87.65	88.99	86.68	88.85	86.73
Single	12.51	11.12	10.12	10.73	10.54	10.36
Others	0.6	1.24	0.89	2.59	0.61	2.91
Educational attainment						
Primary and less	5.21	7.26	3.48	2.95	2.03	1.68
Middle school	32.54	37.04	26.8	25.11	19.45	14.86
High school	18.89	21.79	22.85	25.52	24.27	27.26
Professional school	15.25	16.35	10.43	14.82	10.49	12.93
2-year college	17.92	12.53	23.5	23.61	25.63	29.1
4-year college	10.2	5.04	12.94	7.98	18.14	14.18
Ownership						
State-owned sector	86.88	78.93	73.09	66.78	63.06	55.32
Collective sector	10.97	18.39	5.71	9.13	5.22	7.63
Joint-venture or foreign firm	1.26	1.17	2.4	2.12	16.54	16.02
Private or self-employed	0.59	0.81	8.67	8.87	11.02	12.63
Other ownership	0.31	0.7	10.13	13.09	4.16	8.41
Occupation						
Office worker	19.61	22.82	18.88	24.78	32.98	37.54
Official or manager	17.04	5.83	16.3	5.1	7.42	3.2
Professional or technician	47.91	41.64	46.72	37.64	20.06	19.61
Manual worker	12.3	22.42	16.53	30.11	35.13	34.56
Others	3.14	7.29	1.57	2.37	4.41	5.09
Industry						
Manufacturing	43.26	40.85	27.73	25.09	23.12	15.67
Agriculture	2.02	1.29	1.43	1.26	1.13	0.73
Mining	1.2	0.94	2.35	1.06	1.85	0.7
Construction	3.33	2.56	4.24	2.42	3.73	1.93
Transportation and communication	5.92	4.14	10.25	5.44	11.44	4.5
Commerce and trade	12.31	17.21	7.82	12.64	8.39	15.29

Public utilities	3.34	4.49	13.26	18.59	15.45	20.6
Finance and insurance	1.84	2.21	2.68	3.35	2.81	3.63
Education and culture	6.59	8.69	8.9	10.55	8.14	10.79
Health and social welfare	3.61	5.77	4.15	7.22	3.12	5.93
Scientific research and technology	2.64	2.13	2.27	1.6	5.5	3.75
Government and social organizations	13.93	9.74	14.9	10.78	15.33	16.47
Province						
Beijing	7.3	7.07	8.1	8.83	11.92	11
Shanxi	9.62	9.17	9.41	7.97	8.55	7.47
Liaoning	10.59	10.36	12.2	10.63	10.41	9.61
Jiangsu	11.14	11.1	10.44	10.02	7.3	7.02
Anhui	6.8	7.26	7.31	6.43	8.16	8.25
Henan	8.4	7.99	9.41	9.85	9.07	9.79
Hubei	10.81	10.66	10.87	11.34	5.77	5.54
Guangdong	8.28	8.23	8.87	10.35	14.93	16.29
Sichuan	12.12	12.71	8.71	8.58	7.85	8.2
Yunnan	9.32	9.95	8.63	10.12	7.6	8.13
Gansu	5.62	5.51	6.04	5.87	8.44	8.7

Table 11A.2. *Wage functions in urban China, 1995, 2002, and 2007 (results of linear regression)*

LnWage	1995		2002		2007		Pooled sample	
Male	0.1	0.16	0.26	0.17	0.12	0.2	0.27	0.19
	(10.15)**	(12.03)**	(20.87)**	(24.36)**	(12.84)**	(15.16)**	(22.18)**	(28.16)**
Age group								
21-25	0.26	0.44	0.33	0.3	0.29	0.46	0.34	0.32
	(7.16)**	(5.75)**	(3.84)**	(9.09)**	(8.03)**	(5.83)**	(3.84)**	(9.92)**
26-30	0.42	0.52	0.56	0.46	0.44	0.55	0.57	0.49
	(10.23)**	(6.67)**	(6.41)**	(13.26)**	(10.89)**	(6.89)**	(6.49)**	(14.34)**
31-35	0.54	0.63	0.61	0.55	0.56	0.67	0.62	0.59
	(12.66)**	(7.78)**	(6.88)**	(15.57)**	(13.70)**	(8.12)**	(6.88)**	(16.82)**
36-40	0.64	0.71	0.64	0.63	0.68	0.76	0.67	0.68
	(15.25)**	(8.74)**	(7.23)**	(17.81)**	(16.60)**	(9.19)**	(7.39)**	(19.47)**
41-45	0.7	0.75	0.65	0.67	0.75	0.8	0.67	0.72
	(16.58)**	(9.22)**	(7.28)**	(18.70)**	(18.20)**	(9.69)**	(7.47)**	(20.52)**
46-50	0.69	0.76	0.66	0.66	0.74	0.84	0.68	0.72
	(15.92)**	(9.38)**	(7.36)**	(18.48)**	(17.71)**	(10.09)**	(7.52)**	(20.45)**
51-55	0.71	0.7	0.7	0.66	0.76	0.79	0.73	0.73
	(15.80)**	(8.51)**	(7.74)**	(18.08)**	(17.43)**	(9.33)**	(7.96)**	(20.05)**
56-60	0.78	0.58	0.58	0.6	0.85	0.69	0.6	0.68
	(15.97)**	(6.66)**	(6.17)**	(15.36)**	(17.90)**	(7.77)**	(6.38)**	(17.51)**
Marital status								
Married	0.13	0.15	0.18	0.12	0.13	0.15	0.17	0.12
	(5.29)**	(4.38)**	(6.17)**	(7.26)**	(5.50)**	(4.25)**	(5.95)**	(7.14)**
Others	0.06	0.08	0.15	0.05	0.07	0.08	0.16	0.06
	-1.15	-1.29	(2.83)**	-1.67	-1.25	-1.24	(3.01)**	-1.78
Minority status								
Minority	-0.07	0.07	-0.04	-0.01	-0.07	0.07	-0.04	-0.01
	(2.99)**	(2.10)*	-1.34	-0.62	(2.96)**	(2.16)*	-1.33	-0.77
Education								
Middle school	0.12	0.04	0.16	0.09	0.14	0.07	0.17	0.11
	(5.88)**	-0.98	(3.56)**	(4.83)**	(6.76)**	-1.87	(3.87)**	(6.10)**
High school	0.18	0.17	0.26	0.16	0.22	0.23	0.29	0.2
	(7.69)**	(4.33)**	(5.96)**	(8.70)**	(9.78)**	(5.98)**	(6.62)**	(11.14)**
Professional school	0.24	0.24	0.39	0.26	0.32	0.38	0.45	0.34
	(10.26)**	(5.97)**	(8.41)**	(13.04)**	(13.86)**	(9.21)**	(9.84)**	(17.91)**
2-3-year college	0.27	0.34	0.52	0.34	0.35	0.51	0.62	0.46
	(10.84)**	(8.56)**	(11.53)**	(17.73)**	(15.16)**	(12.90)**	(13.81)**	(24.39)**
4-year college	0.35	0.47	0.7	0.5	0.45	0.68	0.83	0.65
	(12.72)**	(10.86)**	(14.86)**	(23.91)**	(17.34)**	(16.18)**	(18.03)**	(32.29)**
Ownership								
State-owned enterprise	0.25	0.25	0.24	0.24	0.28	0.32	0.28	0.28
	(17.77)**	(9.56)**	(9.73)**	(20.23)**	(20.06)**	(12.42)**	(11.42)**	(23.96)**
Joint-venture or foreign firm	0.45	0.45	0.13	0.2	0.45	0.45	0.12	0.19

	(9.94)**	(9.31)**	(4.85)**	(11.68)**	(10.30)**	(9.04)**	(4.37)**	(11.00)**
Private or self-employed	0.35	-0.11	-0.04	-0.1	0.31	-0.17	-0.08	-0.15
	(3.20)**	(3.45)**	-1.23	(5.63)**	(3.05)**	(5.30)**	(2.95)**	(8.98)**
Other ownership	0.2	0.1	-0.3	-0.1	0.12	0.08	-0.36	-0.14
	(2.57)*	(3.37)**	(8.97)**	(5.80)**	-1.65	(2.46)*	(10.88)**	(8.10)**
Occupation								
Office worker	0.11	0.23	0.08	0.14				
	(6.72)**	(10.70)**	(4.74)**	(13.82)**				
Official or manager	0.23	0.37	0.23	0.27				
	(11.33)**	(13.72)**	(7.99)**	(18.92)**				
Professional or technician	0.16	0.27	0.19	0.2				
	(11.05)**	(14.45)**	(9.96)**	(20.69)**				
Others	0.06	-0.15	-0.07	-0.02				
	(2.36)*	(3.11)**	(2.26)*	-0.89				
Industry								
Agriculture	-0.01	0.05	0.09	0				
	-0.28	-0.91	-1.45	-0.16				
Mining	0.09	0.07	0.33	0.14				
	(2.06)*	-1.35	(6.45)**	(4.80)**				
Construction	0.02	-0.01	-0.01	0				
	-0.69	-0.16	-0.17	-0.13				
Transportation and communication	0.1	0.15	0.08	0.1				
	(4.59)**	(5.92)**	(3.45)**	(7.55)**				
Commerce and trade	-0.05	-0.02	-0.07	-0.04				
	(3.58)**	-0.88	(3.08)**	(3.79)**				
Public utilities	-0.07	0.03	-0.01	-0.05				
	(2.88)**	-1.25	-0.63	(4.01)**				
Finance and insurance	0.24	0.15	0.16	0.16				
	(7.19)**	(3.72)**	(4.48)**	(7.52)**				
Education and culture	0.05	0.18	0.05	0.08				
	(2.52)*	(7.07)**	(2.12)*	(6.03)**				
Health and social welfare	0.06	0.23	0.02	0.09				
	(2.69)**	(7.67)**	-0.49	(5.47)**				
Scientific research and technology	0.13	0.21	0.15	0.16				
	(4.16)**	(4.47)**	(4.94)**	(7.94)**				
Government and social organizations	0	0.11	0.07	0.04				
	-0.12	(4.63)**	(3.01)**	(3.41)**				
Province								
Beijing	0.48	0.46	0.69	0.58	0.45	0.45	0.71	0.57
	(17.65)**	(13.49)**	(26.66)**	(34.87)**	(17.14)**	(12.81)**	(27.12)**	(34.29)**
Shanxi	0.05	-0.05	0.21	0.09	0.02	-0.04	0.23	0.08
	-1.9	-1.53	(7.54)**	(5.22)**	-0.62	-1.18	(8.08)**	(4.76)**
Liaoning	0.18	0.22	0.17	0.2	0.15	0.19	0.18	0.18

	(7.16)**	(6.73)**	(6.28)**	(12.48)**	(6.19)**	(5.81)**	(6.72)**	(11.45)**
Jiangsu	0.43	0.28	0.63	0.46	0.4	0.29	0.64	0.45
	(17.49)**	(8.70)**	(21.85)**	(27.74)**	(16.70)**	(8.70)**	(21.77)**	(27.44)**
Anhui	0.12	0.04	0.24	0.16	0.09	0.05	0.25	0.15
	(4.38)**	-1.21	(8.77)**	(9.08)**	(3.29)**	-1.47	(8.91)**	(8.66)**
Henan	0.03	-0.03	0.07	0.04	-0.02	-0.02	0.08	0.03
	-0.98	-0.93	(2.47)*	(2.46)*	-0.66	-0.5	(2.87)**	(2.02)*
Hubei	0.21	0.05	0.36	0.22	0.18	0.06	0.35	0.2
	(8.47)**	-1.53	(11.76)**	(13.22)**	(7.29)**	-1.75	(11.28)**	(12.33)**
Guangdong	0.84	0.72	0.81	0.8	0.81	0.72	0.82	0.8
	(32.42)**	(21.64)**	(33.23)**	(50.45)**	(31.99)**	(21.24)**	(33.52)**	(50.21)**
Sichuan	0.19	0.13	0.25	0.21	0.17	0.12	0.27	0.2
	(7.83)**	(3.90)**	(9.03)**	(12.60)**	(7.21)**	(3.49)**	(9.55)**	(12.52)**
Yunnan	0.25	0.17	0.18	0.22	0.23	0.2	0.2	0.23
	(9.90)**	(5.00)**	(6.29)**	(13.16)**	(9.34)**	(5.74)**	(6.80)**	(13.46)**
Year2007 Dummy				0.47				0.42
				(53.06)**				(49.03)**
Year2002 Dummy				-0.52				-0.52
				(60.37)**				(61.71)**
Constant	4.47	4.8	5.14	4.93	4.52	4.85	5.13	4.96
	(98.39)**	(54.38)**	(51.88)**	(125.03)**	(104.95)**	(54.14)**	(51.44)**	(128.94)**
Observations	10777	8657	9979	29413	11358	8719	9980	30057
R-squared	0.37	0.35	0.43	0.54	0.35	0.31	0.41	0.53

Notes: Standard errors in parentheses. ** p<0.01, and * p<0.05.

Base group: female, age group 16-20, Single, Han, primary school or less, collective sector, manual worker, manufacturing, Gansu.

Table 11A.3. *Wage functions in urban China, 1995, 2002, and 2007*

VARIABLES		1995		2002		2007	
		Male	Female	Male	Female	Male	Female
Age group	21-25	0.39	0.16	0.42	0.46	0.17	0.55
		(7.73)**	(3.08)**	(3.87)**	(4.26)**	-1.56	(4.03)**
	26-30	0.48	0.39	0.56	0.52	0.45	0.76
		(8.61)**	(6.43)**	(5.18)**	(4.50)**	(4.01)**	(5.48)**
	31-35	0.6	0.5	0.62	0.66	0.53	0.8
		(10.40)**	(8.11)**	(5.56)**	(5.56)**	(4.62)**	(5.72)**
	36-40	0.69	0.63	0.72	0.72	0.57	0.83
		(11.83)**	(10.25)**	(6.37)**	(6.13)**	(4.92)**	(5.95)**
	41-45	0.77	0.66	0.77	0.75	0.59	0.81
		(13.28)**	(10.67)**	(6.86)**	(6.37)**	(5.09)**	(5.82)**
	46-50	0.78	0.62	0.78	0.77	0.57	0.85
		(13.29)**	(9.70)**	(6.92)**	(6.50)**	(4.93)**	(6.05)**
	51-55	0.83	0.55	0.75	0.61	0.58	0.95
		(13.81)**	(7.93)**	(6.62)**	(4.94)**	(4.99)**	(6.62)**
	56-60	0.89	0.43	0.65	0.25	0.5	0.25
		(14.22)**	(3.88)**	(5.56)**	-1.63	(4.27)**	-1.2
Marital status	Married	0.18	0.08	0.19	0.1	0.2	0.11
		(5.58)**	(2.11)*	(4.31)**	-1.75	(4.91)**	(2.63)**
	Others	-0.03	0.1	0.02	0.09	-0.04	0.15
		-0.4	-1.28	-0.25	-1.08	-0.37	(2.25)*
Minority status	Minority	-0.05	-0.09	-0.02	0.16	-0.05	-0.02
		-1.56	(2.48)*	-0.4	(3.07)**	-1.26	-0.52
Education	Middle school	0.09	0.15	0.01	0.09	0.14	0.16
		(3.20)**	(4.79)**	-0.25	-1.45	(2.56)*	(2.16)*
	High school	0.15	0.19	0.13	0.25	0.24	0.27
		(4.76)**	(5.84)**	(2.64)**	(3.95)**	(4.37)**	(3.77)**
	Professional school	0.18	0.31	0.17	0.35	0.34	0.41
		(5.51)**	(8.75)**	(3.33)**	(5.30)**	(5.81)**	(5.53)**
	2-3-year college	0.21	0.34	0.26	0.46	0.48	0.53
		(6.37)**	(9.09)**	(5.27)**	(7.07)**	(8.42)**	(7.34)**
	4-year college	0.3	0.43	0.41	0.57	0.65	0.72
		(8.45)**	(9.55)**	(7.85)**	(7.87)**	(10.98)**	(9.41)**
Ownership	State-owned ent.	0.23	0.25	0.24	0.25	0.31	0.15
		(11.28)**	(12.70)**	(6.63)**	(6.88)**	(8.82)**	(4.43)**
	Joint-venture or foreign firm	0.4	0.49	0.5	0.39	0.18	0.07
		(6.63)**	(7.25)**	(7.98)**	(5.10)**	(4.85)**	-1.89
	Private or self-employed	0.4	0.26	-0.1	-0.12	0.01	-0.08
		(2.61)**	-1.7	(2.35)*	(2.58)**	-0.16	(1.97)*
	Other ownership	0.08	0.26	0.16	0.05	-0.19	-0.36
		-0.54	(2.61)**	(3.75)**	-1.12	(3.88)**	(7.92)**
Occupation	Office worker	0.08	0.12	0.2	0.24	0.07	0.11
		(3.32)**	(5.11)**	(6.55)**	(7.81)**	(3.39)**	(4.20)**
	Official or manager	0.19	0.25	0.33	0.4	0.22	0.24
		(7.46)**	(7.01)**	(9.97)**	(7.81)**	(6.45)**	(4.42)**
	Professional or technician	0.12	0.17	0.22	0.31	0.16	0.25

		(5.82)**	(8.32)**	(8.45)**	(10.74)**	(6.53)**	(8.01)**
	Others	0.05	0.06	-0.11	-0.16	-0.05	-0.07
		-1.21	(1.99)*	-1.64	(2.36)*	-1.2	-1.72
Industry	Agriculture	0.02	-0.06	0.03	0.07	0.06	0.16
		-0.35	-0.9	-0.46	-0.79	-0.81	-1.57
	Mining	0.09	0.09	0.14	-0.12	0.33	0.25
		-1.66	-1.23	(2.36)*	-1.18	(5.76)**	(2.35)*
	Construction	0.02	0.02	0.01	-0.04	0.03	-0.11
		-0.49	-0.54	-0.23	-0.6	-0.78	-1.73
	Transportation and communication	0.09	0.12	0.15	0.16	0.06	0.11
		(3.22)**	(3.24)**	(5.07)**	(3.43)**	(2.26)*	(2.36)*
	Commerce and trade	-0.08	-0.03	-0.04	-0.02	-0.09	-0.04
		(4.11)**	-1.26	-1.07	-0.45	(3.08)**	-1.2
	Public utilities	-0.01	-0.09	0.11	-0.04	0.01	-0.03
		-0.37	(2.46)*	(3.87)**	-1.37	-0.44	-1.11
	Finance and insurance	0.23	0.28	0.26	0.04	0.11	0.2
		(4.96)**	(5.62)**	(4.87)**	-0.76	(2.22)*	(3.99)**
	Education and culture	0.03	0.07	0.26	0.08	0.02	0.07
		-1.08	(2.62)**	(7.76)**	(2.07)*	-0.51	-1.81
	Health and social welfare	0.03	0.1	0.23	0.22	-0.03	0.03
		-0.8	(3.00)**	(5.20)**	(5.09)**	-0.6	-0.75
	Scientific research and technology	0.13	0.13	0.17	0.31	0.17	0.12
		(3.43)**	(2.47)*	(3.03)**	(3.82)**	(4.74)**	(2.37)*
	Government and social organizations	-0.02	0.04	0.15	0.09	0.1	0.03
		-0.91	-1.37	(5.09)**	(2.07)*	(3.47)**	-0.78
Province	Beijing	0.47	0.48	0.49	0.45	0.67	0.72
		(13.34)**	(11.60)**	(11.11)**	(8.48)**	(19.83)**	(18.07)**
	Shanxi	0.09	0	-0.06	-0.03	0.22	0.18
		(2.80)**	-0.09	-1.36	-0.52	(6.11)**	(4.25)**
	Liaoning	0.17	0.18	0.23	0.23	0.2	0.12
		(5.32)**	(4.69)**	(5.59)**	(4.41)**	(5.72)**	(2.93)**
	Jiangsu	0.38	0.49	0.27	0.31	0.63	0.63
		(11.78)**	(12.98)**	(6.49)**	(6.09)**	(16.55)**	(14.20)**
	Anhui	0.1	0.13	0.05	0.04	0.26	0.22
		(3.02)**	(3.07)**	-1.22	-0.72	(7.16)**	(5.28)**
	Henan	0.04	0.02	-0.03	-0.01	0.02	0.13
		-1.07	-0.46	-0.77	-0.29	-0.42	(3.15)**
	Hubei	0.16	0.26	0.03	0.08	0.38	0.34
		(4.95)**	(6.88)**	-0.75	-1.65	(9.47)**	(7.09)**
	Guangdong	0.81	0.87	0.69	0.75	0.81	0.8
		(24.05)**	(21.70)**	(16.07)**	(14.66)**	(25.22)**	(21.80)**
	Sichuan	0.18	0.21	0.08	0.23	0.17	0.35
		(5.57)**	(5.55)**	-1.74	(4.23)**	(4.73)**	(8.22)**
	Yunnan	0.21	0.28	0.12	0.23	0.12	0.24
		(6.43)**	(7.37)**	(2.62)**	(4.39)**	(3.23)**	(5.61)**
Constant		4.56	4.49	4.98	4.74	5.46	5.04
		(72.32)**	(68.52)**	(40.88)**	(36.68)**	(43.16)**	(32.04)**
Observations		5688	5089	4827	3830	5579	4400

R-squared	0.36	0.36	0.33	0.36	0.41	0.41

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, and * p<0.1.

Base group: age group 16-20, Single, Han, primary school or less, collective sector, manual worker, manufacturing, Gansu.

*The first draft of this chapter was presented at the Workshop on Income Inequality in China, May 21-22, 2010, at Beijing Normal University. The authors are grateful for comments from the participants at the workshop constructive comments and suggestions from Terry Sicular.

[1] Housewives as a percentage of urban female adults ages 16-60 increased from 2.9 percent in 1995 to 4.3 percent in 2002 and more or less remained at that level (4.2 percent) in 2007.

[2] In the CHIP analyses, Chongqing is treated as a western city rather than a provincial-level city. The reason is that Chongqing is qualitatively different from the three provincial-level cities (Tianjin, Beijing, and Shanghai) in terms of its level of development and urbanization. It is more similar to a western province rather than to the three other provincial-level cities in terms of the proportions of the urban and rural populations and the level of economic development. Also, Chongqing was not established as a province separate from Sichuan until 1997, so in earlier rounds of the CHIP survey Chongqing is included in the Sichuan sample.

[3] We did not use weights to adjust for any bias in our data. There are two reasons. First, we could weight the 2002 and 2007 data based on the regional distribution of urban workers in the 2000 census data and the 2005 mini census data, as other chapters in this volume. But there are no reference data for weighting the samples in the 1995 survey. Therefore, we prefer to keep the same provinces for all three surveys. Second, we compared the results with respect to provincial weights for the 2002 and 2007 data and found that after introducing a province dummy into the wage equations, the regression results did not change significantly. Consequently, we believe that our findings are quite robust.

[4] As the official retirement age for the majority of female workers is 50 or 55, the percentage of female workers in the age groups over 50 is comparatively lower (see Appendix Table 11A.1). Female workers over age 50 remaining economically active (not retired) are officials or professionals who have relatively higher wage income. Therefore, the earlier retirement regulation for female workers is more likely to lead to an underestimation of the gender wage gap. In other words, the gender wage gap would be larger if female workers retired at the same age as male workers.

[5] Our unemployment rates for the three years are much higher than the official rates. The official rates were 2.9 percent, 4 percent, and 4 percent in 1995, 2002, and 2007 respectively (NBS 1996, 2003, 2008).

[6] The gender wage gap can also be decomposed as $\boldsymbol{Y}_{m,t} - \boldsymbol{Y}_{f,t} = \boldsymbol{\beta}_{f,t} (\boldsymbol{X}_{m,t} - \boldsymbol{X}_{f,t}) + \boldsymbol{X}_{m,t} (\boldsymbol{\beta}_{m,t} - \boldsymbol{\beta}_{f,t})$. Here we adopt Formula (2) instead of the alternative formula. The reason is that we suppose that females would be treated as males if there were no discrimination in the labor market.

[7] See Table 11A.1 for the sample distribution among different occupations and industries. From the table, we see that male workers have a higher probability of being employed as "office workers," "officials or managers," or "professionals or technicians," positions that are better paid, whereas more female workers are manual workers. The segregation in terms of occupation seems to be worse in 1995 and 2002 but more likely to be improved in 2007. However, the disproportional distribution among industries for male and female workers clearly did not change during the period under investigation.

[8] Male wages as a higher percentage than female wages are computed using the following formula: P = exp (C) -1, where P= percentage, and C= coefficients.