Research Paper No. 2006/146

Gender Wage Differentials in China's Urban Labour Market

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November 2006

Abstract

This paper describes and decomposes wage differences between female and male workers. The results indicate that females receive low wages because of unequal pay within sectors, and that the wage gap caused by the difference in sectoral attainment is small. The results also reveal that a lion's share of the wage differential between females and males is attributable to discrimination rather than to the human capital difference between the genders. Eliminating discriminations against females with a focus on intra-sectoral inequality is crucial for reducing female/male wage differentials.

Keywords: labour market, wage differentials, gender discrimination

JEL classification: J16, J31, J71

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This study has been prepared within the UNU-WIDER project on Inequality and Poverty in China.

UNU-WIDER gratefully acknowledges the financial contributions to its research programme by the governments of Denmark (Royal Ministry of Foreign Affairs), Finland (Ministry for Foreign Affairs), Norway (Royal Ministry of Foreign Affairs), Sweden (Swedish International Development Cooperation Agency—Sida) and the United Kingdom (Department for International Development).

ISSN 1810-2611 ISBN 92-9190-930-0 ISBN-13 978-92-9190-930-8

Acknowledgements

We are indebted to Wan Guanghua, Zhao Zhong, Liang Zhicheng, Meng Xin, Li Shi, Terry Secular, Bjorn Gustafsson, Zhang Xiaobo and many other people for their valuable comments and suggestions. However, the authors are alone responsible for any possible errors in the paper.

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Camera-ready typescript prepared by Liisa Roponen at UNU-WIDER

1 Introduction

During the pre-reform period, the state-owned and collective-owned enterprises, which dominated the Chinese economy, had no autonomy in hiring or firing workers. All working-aged urbanites, both men and women, were entitled to, and provided with, a job assigned by the government's department of labour. Under this system, the target of employment policies was to guarantee full employment with very low and relatively equal wage rates. Lacking operative autonomy and responsibility, enterprises had no rights in deciding wage rates or wage increases on the one hand, and had no incentive, on the other hand, to do so (Lin, Cai and Li 2001). During the entire period of 1950s to the late 1970s, the average wage rate level of Chinese workers had not changed much, nor did it reflect the differences in workers' individual characteristics and work efforts.

The economic reform that began in the late 1970s has continually granted more autonomy to the state-owned and collective-owned enterprises, inducing market-like behaviour. Furthermore, non-state and private enterprises have been rapidly expanding and have become dominant players in market competition since the late 1990s. With the structural change in ownership, market forces increasingly play a role in allocating resources. As the result of this privatization and marketization, an increasingly enhanced share of the labourforce is allocated through labour markets instead of administrative distribution. In the same process, an increased wage gap between female and male workers has been observed in urban labour markets (Gustafsson and Li 2000; Maurer-Fazio, Rawski and Zhang 1999). The explanations on the widening income gap between genders may differ.

One possible explanation is that as labour markets develop, the returns to human capital increase and the differences in educational attainment and work skills between female and male workers become reflected in wage differentials. Some studies find that a rapid increase of returns to education in labour markets occurs during the economic transition (for example, Lai 1999; Li, Zhao and Zhang 1999). If women's educational attainments are significantly lower than men's, a systematic wage differential between genders exists as long as the labour markets work. According to the national census conducted in 2000, women have on average 1.1 years of less schooling than men in the country as a whole, while the gap is 0.93 years in urban areas. Gustafsson and Li (2000) suggest that the most important source of the increase in the explained wage difference is education, although discrimination is also a factor. Another study (Mason, Rozelle and Zhang 2000) finds that the unexplained part of the observed wage gap between genders in the rural areas has been constant, but its comparative importance declined in the period of 1988 to 1995.

Another possible explanation is enterprise behaviour under the market environment. That is, now that enterprises are motivated to maximize profits and have the autonomy of hiring and deciding compensation, they value, for whatever reason, female workers less than male workers, and thus hire fewer women or/and pay them less. If the differences in education and other individual characteristics cannot explain the entire wage differential between females and males, discrimination is present in the labour market. Existing literature suggests that human capital is not the only factor explaining the earnings gap between genders. Given the fact that enterprises have achieved profit motivation and managerial autonomy, if the labour market has not matured to the stage so as to evaluate accurately workers' human capital, gender may become a 'signal' of pre-assuming workers' performance, which is similar to the 'sheepskin effect in the

returns to education' (Hungerford and Solon 1987). During the reform process, state-owned enterprises still behave differently from their non-state counterparts, which §operate in environment with a closer resemblance to a competitive labour market. Maurer-Fazio and Hughes (1999) find significant difference in gender earnings deviations between state and non-state sectors. According to one study (Liu, Meng and Zhang 2000), the earnings gap that can be explained by discrimination declines in the transition from the state-owned, or collectively owned enterprises to private enterprises. Meng (1998) finds that the gender earnings differentials are attributable in full to discrimination for those employees whose jobs were assigned by local governments, while only two-thirds can be attributed to discrimination on the part of workers who obtained jobs through individual job-hunting efforts.

In fact, the current gender earnings gap existing in the urban labour markets is due to both contributions of human capital difference and pure discrimination factor. For examining the topic of gender earnings differentials, several questions need to be answered. First, we need to explore the extent to which labour market discrimination contributes to the gender gap in earnings. Second, in cases where discrimination is present, we need to determine whether it is generated in the selection process, or in the form of pay difference. Third, other attributes of gender earnings differentials in addition to the discrimination factor need to be identified. This paper intends to answer these questions empirically.

The rest of the paper is organized as follows. In section 2, we utilize both macro and micro data to illustrate the sectoral and occupational distribution and differences in educational attainments between female and male workers. Sections 3 employs the decomposition method to estimate the components of gender wage differentials, revealing the relative contribution of each factor to overall differentials in gender earnings. Section 4 concludes with some policy implications.

2 Employment and human capital difference

In the following section, we utilize data from the China Urban Labour Survey (CULS) to analyse gender wage differentials between sectors. CULS was conducted in five cities: Fuzhou, Shanghai, Shenyang, Wuhan, and Xian at year-end 2001 by the Institute of Population and Labour Economics at the Chinese Academy of Social Sciences (IPS-CASS). In each city, all labourers aged over 16 years old in 700 local households and 600 individual migrant workers were interviewed, respectively.

We analyse the sectoral distribution and wages of females and males aged 16-60 years. Based on the average wage levels by sector in 2001 given in the National Bureau of Statistics' *China Statistical Yearbook 2002* (NBS), we rank the average wages of 16 sectors in ascending order into four groups.[1] The first group of sectors includes farming, forestry, animal husbandry and fishery, mining and quarrying, construction and wholesale and retail trade and catering services. The second category includes sectors such as manufacturing, geological prospecting, water conservancy, education, culture

[1] Some may consider that this categorization method based on the average wage of sectors to be too simple. Research is being done to obtain indicators that would better reflect the monopoly and entry barriers among sectors. However, there are no convincing results yet.

and arts, radio, film and television and social services. The third group covers government agencies, party agencies and social organizations, health care, sports and social welfare, real estate trade and other sectors. The fourth group encompasses such sectors as transport, storage, post and telecommunication services, production and supply of electricity, gas and water, finance and insurance and scientific research and polytechnic services. The average wage level rises from the first to the fourth group of sectors, implying a successively increasing monopoly and entry barriers among the sectors.

Based on CULS data, Table 1 gives the sectoral distribution and hourly wages for females and males aged 16-60 in the five cities under review. The differences in sectoral distribution between females and males are quite noticeable. In the first, second and third groups, women are better represented than men, whereas in the fourth group, the proportion of females is lower. This indicates that it is easier for men to enter sectors with a high monopoly and entry barriers. As is shown in Table 1, the differences in hourly wages between females and males are not only very large, but exist widely in all sectors. There are also differences between males and females in human capital endowments and individual characteristics. As Table 2 indicates, men have an advantage over women in all human capital indicators such as years of schooling, job

Table 1
Sectoral distribution and hourly wages for females and males

	Sectoral distribution				Hourly wage by sector (yuan)			
	Females		Males		Females		Males	
Workers in:	Freq.	%	Freq.	%	Mean	SD	Mean	SD
1st sector group	402	24.72	472	21.95	4.88	7.98	5.82	8.63
(farming, forestry, animal husbandry & fishery, mining & quarrying, construction & wholesale retail trade & catering services)								
2nd sector group	711	43.73	868	40.37	4.58	5.32	5.63	4.49
(manufacturing, geological prospecting, water conservancy, education, culture and arts, radio, film & television and social services)								
3rd sector group	281	17.28	299	13.91	5.38	3.71	6.86	4.24
(government agencies, party agencies and social organizations, health care, sports & social welfare, real estate trade and other sectors)								
4th sector group	232	14.27	511	23.77	6.14	5.85	7.31	7.20
(transport, storage, post & telecommunication services, production/ supply of electricity, gas & water, finance & insurance; scientific research & polytechnic services)								
Total	1626	100.00	2150	100.00	5.01	5.96	6.24	6.29

Source: Calculated from China Urban Labour Survey.

experience, communist party membership and health status. Compared to women, men have more schooling (0.12 years), more other job experience (0.06 years) and more total job experience (3.04 years). The proportion of males with party membership is 24.98 per cent, which is higher than that of females. Good health status is reported by 57.4 per cent of the males, which is higher than reported for females. There are also other differences in individual characteristics between females and males. The proportion of females with training is higher than for males, while 82.4 per cent of the females have spouses, which is lower than the proportion of males.

Table 2
Summary statistics of human capital and individual characteristics for females and males

	Female		Male		
Continuous variables	Mean	SD	Mean	SD	Difference in mean
Years of schooling	11.67	2.76	11.78	3.00	0.12
Other job experience	4.84	7.69	4.90	7.19	0.06
Total job experience	18.88	9.91	21.92	10.14	3.04
Discrete variables	%		%		Difference in %
Party membership	14.39		24.98		-10.59
Good health status	51.42		57.41		5.99
Normal health status	41.01		37.00		-4.01
Poor health status	7.57		5.59		-1.98
Training	14.94		12.09		-2.85
Married	82.40		83.95		1.55

Source: Calculated from China Urban Labour Survey.

Table 3
Occupational distribution and years of schooling for females and males

	White-collar workers		Blue-collar workers	
	Proportion	Yrs of schooling	Proportion	Yrs of schooling
	China			
Males	11.53	12.09	88.47	7.92
	(0.0528)	(0.0134)	(0.0528)	(0.0048)
Females	9.15	12.31	90.85	6.85
	(0.0524)	(0.0139)	(0.0524)	(0.0062)
Difference	2.38	-0.22	-2.38	1.07
	(0.0744)	(0.0193)	(0.0744)	(0.0079)
	Urban areas			
Males	26.06	12.45	73.94	9.07
	(0.1251)	(0.0152)	(0.1251)	(0.0085)
Females	24.74	12.50	75.26	8.48
	(0.1408)	(0.0149)	(0.1408)	(0.0111)
Difference	1.32	-0.05	-1.32	0.59
	(0.1883)	(0.0213)	(0.1883)	(0.0140)
	Rural areas			
Males	4.15	10.94	95.85	7.47
	(0.0405)	(0.0253)	(0.0405)	(0.0056)
Females	2.13	11.29	97.87	6.29
	(0.0316)	(0.0343)	(0.0316)	(0.0070)
Difference	2.02	-0.35	-2.02	1.18
	(0.0514)	(0.0427)	(0.0514)	(0.0089)

Notes: Standard errors are in parentheses.

Source: Calculated from 0.95‰ sampling data of population census in 2000.

We now analyse the occupational distribution difference between females and males using 0.95‰ sampling data of the population census in 2000. We define white-collar workers as those who are staff of government and party agencies; managers of enterprises and social organizations; professional and technical staff, and junior office staff. Blue-collar workers constitute workers in the trades and services; labourers in farming, forestry, animal husbandry, fishery and water conservancy: workers handling production and transportation equipment, and 'others'.

As can be seen from Table 3, huge differences exist between females and males in the occupational distribution and years of schooling. This is consistent with our findings from CULS. The share of female workers engaged in white-collar job is lower than males while the proportions of female blue-collar workers are higher regardless of whether China is considered as a whole, or broken down to urban areas or rural areas. Z test shows that all the differences in proportions are statistically significant. On the other hand, female white-collar workers have more years of schooling than males, while female blue-collar workers have less schooling. And the t test indicates that all the differences are also very significant.

We also analyse the sectoral distribution difference between females and males using 0.95‰ sampling data of the population census in 2000. Based on the average wage levels in 2001 by sector reported in the *China Statistical Yearbook 2002* (NSB 2002), we rank the average wages of 16 sectors in ascending order into low-wage sectors and high-wage sectors.

Table 4
Sectoral distribution and years of schooling for females and males

	Low-wage sectors		High-wage sectors	
	Proportion	Yrs of schooling	Proportion	Yrs of schooling
	China			
Males	89.93	8.11	10.07	10.98
	(0.0498)	(0.0051)	(0.0498)	(0.0150)
Females	94.67	7.11	5.33	11.68
	(0.0408)	(0.0064)	(0.0408)	(0.0208)
Difference	-4.74	1.00	4.74	-0.7
	(0.0644)	(0.0082)	(0.0644)	(0.0257)
	Urban areas			
Males	77.86	9.51	22.14	11.48
	(0.1182)	0.0094)	(0.1182)	(0.0173)
Females	85	9.04	15	11.91
	(0.1164)	(0.0114)	(0.1164)	(0.0214)
Difference	-7.14	0.47	7.14	-0.43
	(0.1659)	(0.0147)	(0.1659)	(0.0276)
	Rural areas			
Males	96.07	7.53	3.93	9.57
	(0.0395)	(0.0057)	(0.0395)	(0.0249)
Females	99.02	6.36	0.98	10.07
	(0.0215)	(0.0071)	(0.0215)	(0.0615)
Difference	-2.95	1.17	2.95	-0.5
	(0.0449)	(0.0091)	(0.0449)	(0.0664)

Notes: Standard errors are in parentheses.

Source: Calculated from 0.95‰ sampling data of the population census in 2000.

We find huge differences in the sectoral distribution and years of schooling between females and males in Table 4. In both urban and rural areas, the proportion of females engaged in low-wage sectors and the proportion of males in high-wage sectors are higher than their counterparts with statistical significance, respectively. Female workers in high-wage sectors have more years of schooling than males. Female workers in low-wage sectors have less years of schooling. The t test indicates that all the differences are also very significant.

Difference in human capital is undoubtedly one of the factors that causes gaps between females and males in sectoral attainment and earnings. If the wage differentials between females and males can be explained perfectly by individual endowment differences, there is no systematic discrimination against females in the labour market. From the above analysis we can see that the human capital of females is lower in some occupations and sectors and higher in others, but in all cases female wages are lower than that of males. The next section examines this issue to determine if discrimination against females exists in China's urban labour market.

3 Wage discrimination against female workers

Discrimination against females has been present in many aspects for long time due to historical and social factors. In labour economics, human capital endowments and other personal characteristics of workers are decisive in determining employment opportunities and levels of earning. Only the unexplained component of existing differences in work and pay can be considered to be the result of labour market discrimination (Becker 1957). Wage discrimination refers to wage differentials caused solely by gender, race or household registration address after controlling for the individual's productivity-related characteristics. To what extent does the gap in human capital cause the sectoral attainment and wage differences between females and males in China's urban labour market? Are there other institutional or unexplainable factors? To what extent are the wage differences caused by inter-sectoral or intra-sectoral wage differentials?

Most studies on this topic focus either on comparing the differences in female wage discrimination between firm ownerships, or on analysing the relationship between wage discrimination and the degree of marketization. There is, however, a host of literature showing that sectoral wage difference is an important component of the overall wage gap. For example, after controlling for such factors as education, ability, trade union activeness, short-term labour demand, and job hazard, all of which vary across sectors, significant wage differentials are still found among sectors (Katz 1986). Other research suggests that even in countries with advanced labour markets, sectoral wage differentials exist (Krueger and Summers 1988; Dickens and Katz 1987).

We utilize the CULS data to decompose the wage differentials between females and males by adopting the method developed by Brown, Moon and Zoloth (1980). The wage decomposition proposed by these authors can be expressed by the equation:

$$\overline{W}^{M} - \overline{W}^{F} = \sum_j P_j^F \hat{\beta}_j^M (\overline{X}_j^M - \overline{X}_j^F) + \sum_j P_j^F \overline{X}_j^F (\hat{\beta}_j^M - \hat{\beta}_j^F) + \sum_j \overline{W}_j^M (P_j^M - \hat{P}_j^F) + \sum_j \overline{W}_j^M (\hat{P}_j^F - P_j^F) \quad (1)$$

Where superscripts F and M refer to females and males, respectively. In addition, $\overline{W}^F$ and $\overline{W}^M$ are the mean wage in logarithm term for females and males, respectively, $\hat{\beta}_j^F$ and $\hat{\beta}_j^M$ are the estimated coefficients from sectoral-specific wage equations for each group, $\overline{X}_j^F$ and $\overline{X}_j^M$ are the mean values of individual endowments for each group in sector j, P_j^F and P_j^M are the observed proportions of each group in sector j, and $\hat{P}_j^F$ is the hypothetical proportion of females who would have been in sector j if they followed the same sectoral distribution as males do.

3.1 Estimation of sectoral attainment

To apply the above method, we first need to utilize a multinomial logit model[2] to estimate the impact of sectoral attainment separately for the two groups. A reduced form of the multinomial logit model is specified to capture how certain variables influencing sectoral attainments affect the probability (P_{ij}) of individual i working in sector j. This model is given as:

$$P_{ij} = \text{Prob}(y_i = sector_j) = \frac{e^{\beta'_j x_i}}{\sum_{k=1}^{J} e^{\beta'_k x_i}},\ i = 1,...,N,\ j = 1,...,J \quad (2)$$

where N is the sample size, J is the number of sectoral groups, and x_i, is a vector of exogenous variables affecting sectoral attainments.

The estimation of the multinomial logit model requires a choice of a reference group, whose coefficient is normalized to 0. Therefore, coefficients from other groups should be compared to the reference group. A positive coefficient means that the variable has a positive effect on the relative probability of being in that sector as compared to the reference group. In contrast, a negative coefficient means that the variable has a negative effect on the relative probability of being in that sector as compared to the reference group.

We have four groups of sectors. The first group is taken to be the reference group. The independent variables included in the sectoral attainment model are years of schooling, other job experience, other job experience squared, a dummy variable for party membership (non-party member as the reference group), a dummy variable for training (no training as the reference group), a dummy variable for marital status (no spouse as the reference group), a group of dummy variables for health status (poor health status as the reference group), family size and a group of dummy variables for four cities

2 We use a multinomial logit model rather than ordered probit model because there is no obvious hierarchical order among the sectors.

(Shanghai as the reference group). The separate estimation results for females and males are reported in Table 5.

Table 5
Multinomial logit results of sectoral attainment model

	Females		Males	
	Coefficient	Standard error	Coefficient	Standard error
	Workers in the second group of sectors			
Years of schooling	0.0910***	0.0259	0.0370*	0.0221
Other job experience	-0.0349	0.0234	-0.0394	0.0240
Other job experience squared	0.0008	0.0008	0.0006	0.0009
Dummy for Party member	0.4285**	0.2147	0.1861	0.1532
Dummy for training	0.1627	0.2081	0.0248	0.2077
Dummy for married	0.5100***	0.1776	0.5310***	0.1704
Dummy for good health status	-0.4104*	0.2480	0.6092**	0.2443
Dummy for normal health status	-0.3597	0.2492	0.8981***	0.2488
Family size	-0.1171*	0.0656	-0.0140	0.0649
Dummy for Wuhan	0.2611	0.2028	-0.2970	0.1905
Dummy for Shenyang	0.1138	0.2280	-0.5427***	0.2013
Dummy for Fuzhou	0.0488	0.1927	-0.6338***	0.1861
Dummy for Xian	0.3311*	0.2007	-0.3676**	0.1875
Constant	-0.2567	0.4600	-0.4261	0.4433
	Workers in the third group of sectors			
Years of schooling	0.1403***	0.0334	0.1169***	0.0285
Other job experience	0.0117	0.0302	0.0179	0.0312
Other job experience squared	-0.0004	0.0011	-0.0003	0.0012
Dummy for Party member	0.8003***	0.2423	0.6766***	0.1854
Dummy for training	0.4422*	0.2394	0.3657	0.2390
Dummy for married	0.2557	0.2201	0.1325	0.2178
Dummy for good health status	-0.1988	0.3318	0.6987**	0.3335
Dummy for normal health status	0.0044	0.3308	0.6225*	0.3429
Family size	-0.1075	0.0846	-0.1156	0.0891
Dummy for Wuhan	-0.2150	0.2512	-0.4226*	0.2517
Dummy for Shenyang	0.1980	0.2624	-0.3865	0.2589
Dummy for Fuzhou	-0.2348	0.2330	-0.1398	0.2292
Dummy for Xian	-0.7103***	0.2729	-0.8399***	0.2581
Constant	-1.7951***	0.5964	-2.2019***	0.5941
	Workers in the fourth group of sectors			
Years of schooling	0.1474***	0.0359	0.0428*	0.0247
Other job experience	-0.0266	0.0399	-0.0081	0.0283
Other job experience squared	-0.0007	0.0017	-0.0008	0.0012
Dummy for Party member	-0.0598	0.2979	-0.0243	0.1738
Dummy for training	0.4465*	0.2513	0.5645***	0.2114
Dummy for married	0.5201**	0.2347	0.1694	0.1809
Dummy for good health status	0.8588*	0.4467	0.6043**	0.2794
Dummy for normal health status	0.5651	0.4521	0.6258**	0.2863
Family size	-0.0874	0.0868	-0.0342	0.0725
Dummy for Wuhan	0.8051***	0.2687	0.0580	0.2088
Dummy for Shenyang	0.3843	0.3066	-0.3513	0.2259
Dummy for Fuzhou	-0.1861	0.2901	-0.3541*	0.2070
Dummy for Xian	0.1820	0.2863	-0.4401**	0.2152
Constant	-3.3127***	0.7077	-0.7771	0.4971
Log likelihood	-1945.7954		-2633.6301	
P rob>chi2	0.0000		0.0000	
Pseudo R^2	0.0407		0.0303	
Observations	1583		2067	

Notes: The first group of sectors is taken to the reference group;
***, ** and * indicate 1%, 5% and 10% significant levels, respectively.

The multinomial logit sectoral attainment model is estimated for females and males, respectively. We conduct F-test and find that there is a statistically significant difference between females and males in the equations explaining sectoral attainment. From the estimation, education has very similar effects for females and males. It increases the probability of entering the second, third and fourth sector groups for both females and males, in comparison to entering the first group of sectors. Females with party membership are more likely to enter the second and third sector groups, while males who are party members are more likely to enter the third group. The role of training in sectoral attainment is very similar for both genders: training increases the probability for females of entering the third and fourth sector groups, while for males it also increases the probability of entering the fourth group. Females who have spouses are more likely to enter the second and fourth sectoral groups, and males with spouses are also more likely to enter the second group. Males with good or normal health status are more likely to enter the second, third and fourth groups, compared to males with poor health status. Females with larger family size are less likely to enter the second group.

3.2 Sectoral distributions: actual and predicted

The structural difference in sectoral attainment between females and males seemingly indicates that they are treated differently in urban labour markets. We predict the sectoral distribution for females by using the estimated parameters of the sectoral attainment model for males. This prediction reveals what the sectoral distribution of females would have been if they were treated similarly to males. The difference between actual and predicted sectoral distributions indicates the degree of different treatment in favour of males or against females. We also predict the sectoral distribution for males using the estimated parameters of the sectoral attainment model for females to reveal what the sectoral distribution of males would have been if they were treated similarly to females. Table 6 reports the actual and predicted sectoral distribution for the two groups of workers.

The results reported in Table 6 show that if females had received equal treatment with males, the proportion of being in the first, second and third groups would have decreased by 2.32 per cent, 3.88 per cent and 4.27 per cent, respectively, and the proportion of females in the fourth group would have increased by more than 10 per cent. In contrast, if males had been treated similarly to females, the male shares of being

Table 6
Actual and predicted sectoral distributions for females and males (%)

	Actual (1)	Predicted (2)	Difference (2) minus (1)
Workers in:		Females	
1st group of sectors	24.95	22.63	-2.32
2nd group of sectors	44.28	40.40	-3.88
3rd group of sectors	16.99	12.72	-4.27
4th group of sectors	13.77	24.25	10.48
		Males	
1st group of sectors	22.01	24.37	2.36
2nd group of sectors	40.49	44.14	3.64
3rd group of sectors	13.84	17.84	4.00
4th group of sectors	23.66	13.65	-10.01

in the first, second and third groups would have increased by 2.36 per cent, 3.64 per cent and 4.00 per cent, respectively and male representation in the fourth sector would have decreased by more than 10 per cent.

3.3 Estimation of wage equation

In order to determine the components of discrimination in the overall wage differentials between the genders, we need to estimate wage equations for females and males, respectively. The decomposition procedure requires us to estimate wage equations for females and males within each sector. The wage equation is specified as:

$$\log(inc) = \alpha + \beta_1 e + \beta_2 y + \beta_3 y^2 + \beta_4 p + \beta_5 t + \beta_6 m + \beta_7 h + \beta_8 f + \beta_9 c + \beta_{10} o + \beta_{11} u + \varepsilon \quad (3)$$

where *inc* is hourly wage, *e* is years of schooling, *y* is total job experience, y^2 is total job experience squared, *p* is a dummy variable for party membership (non-party membership as the reference group), *t* is a dummy variable for training (no training as the reference group), *m* is a dummy variable for marital status (no spouse as the reference group), *h* is a group of dummy variables for health status (poor health status as the reference group), *f* is family size, *c* is a group of dummy variables for occupations (self-employed workers as the reference group); *o* is a group of dummy variables for ownerships (government and party agencies and institutions as the reference group); *u* is a group of dummy variables for four cities (Shanghai as the reference group), ε is the error term. The wage equation estimation results are reported in Table 7.

Most coefficients have the expected signs and are statistically significant, and the R^2 values are reasonable in the equations of both females and males.[3] As is shown in Table 7, education has a significantly positive effect on wage determination for both genders in almost all sectors. The rate of return to education is higher for females than males: in all four sector groups, the rates of return to education are above 6 per cent, compared to less than 6 per cent for males, except for the third group. The variable of total job experience, as another proxy for human capital, has no significant effect on the wage determination of either gender in almost all groups of sectors. The dummy variable for party membership is positively related to wages for females in the first group and for males in the third group. The dummy variable for training is positively related to female wages in the first and second groups and for males in the second group. Good health status has positive effects on female wages in the first and third groups and on male wages in the first and second groups. Normal health status has positive and significant effects on the wages of men in the first and second groups. The city dummy variables affect negatively and significantly wages for both genders in each group of sectors. We do not discuss other controlling variables in detail here.

3 We also estimate the pooled regression of females and males for each sector. The results show that the dummy variable for female is significantly negative. For simplicity, we do not present the results here.

Table 7
OLS estimation of hourly wage equations for females and males

	Workers in the different sector groups			
	1st group	2nd group	3rd group	4th group
	FEMALES			
Years of schooling	0.0947***	0.0821***	0.0758***	0.0656***
	(0.0161)	(0.0125)	(0.0206)	(0.0207)
Total job experience	0.0066	0.0034	0.0312*	0.0289*
	(0.0119)	(0.0093)	(0.0160)	(0.0160)
Total job experience^2	-0.0001	-0.0001	-0.0009**	-0.0007*
	(0.0003)	(0.0003)	(0.0004)	(0.0004)
Dummy for party membership	0.2173**	-0.1167	0.0679	0.0548
	(0.0846)	(0.0734)	(0.1216)	(0.0863)
Dummy for training	0.2022**	0.1433***	0.1822	0.1591
	(0.1020)	(0.0551)	(0.1214)	(0.1007)
Dummy for married	0.0253	0.1050	-0.1903	-0.0791
	(0.0911)	(0.0706)	(0.1171)	(0.1117)
Dummy for good health	0.3397**	0.0712	0.3338*	0.2237
	(0.1331)	(0.0790)	(0.1736)	(0.2345)
Dummy for normal health	0.0999	0.0519	0.2435	0.0682
	(0.1323)	(0.0807)	(0.1920)	(0.2312)
Family size	-0.0500*	-0.0195	-0.0270	-0.0118
	(0.0263)	(0.0216)	(0.0619)	(0.0476)
Workers	-0.1257	-0.2925**	0.0298	-0.4784*
	(0.1099)	(0.1464)	(0.2472)	(0.2618)
Professional staff	0.0471	-0.0332	0.3955	-0.2088
	(0.1323)	(0.1622)	(0.2434)	(0.2714)
State-owned enterprises	0.2279***	0.0810	0.0240	-0.0283
	(0.0872)	(0.0535)	(0.1083)	(0.0912)
Collective enterprises	0.0731	-0.2495***	-0.1578	-0.2910
	(0.1230)	(0.0845)	(0.3280)	(0.1806)
Private enterprises	0.0425	-0.2988***	-0.1294	-0.6003***
	(0.0880)	(0.0654)	(0.1477)	(0.1557)
Foreign and joint-venture	0.4900***	-0.0083	0.1441	0.1366
	(0.1124)	(0.1484)	(0.1223)	(0.1782)
Dummy for Wuhan	-0.7263***	-0.4076***	-0.3730**	-0.6564***
	(0.0970)	(0.0885)	(0.1537)	(0.1073)
Dummy for Shenyang	-0.5957***	-0.5137***	-0.4752***	-0.6875***
	(0.1176)	(0.0840)	(0.1727)	(0.1229)
Dummy for Fuzhou	-0.3875***	-0.1692**	-0.3883**	-0.3484**
	(0.0952)	(0.0696)	(0.1704)	(0.1604)
Dummy for Xian	-0.5565***	-0.5352***	-0.7390***	-0.6732***
	(0.0921)	(0.0745)	(0.1993)	(0.1212)
Constant	0.3799	0.7698***	0.3201	1.4006***
	(0.2904)	(0.2119)	(0.4864)	(0.4999)
Prob>F	0.0000	0.0000	0.0000	0.0000
R^2	0.4370	0.3602	0.3018	0.4324
Observations	371	665	253	209

Table 7 con't

Table 7 (con't)
OLS estimation of hourly wage equations for females and males

	Workers in the different sector groups			
	1st group	2nd group	3rd group	4th group
	MALES			
Years of schooling	0.0170 (0.0151)	0.0531*** (0.0077)	0.0686*** (0.0147)	0.0439*** (0.0117)
Total job experience	-0.0042 (0.0131)	0.0013 (0.0094)	-0.0108 (0.0119)	-0.0037 (0.0125)
Total job experience^2	-0.0001 (0.0003)	0.0001 (0.0002)	0.0004 (0.0003)	0.0000 (0.0003)
Dummy for Party membership	0.0542 (0.0645)	-0.0281 (0.0429)	0.1659** (0.0660)	0.0686 (0.0641)
Dummy for training	-0.0372 (0.1013)	0.1034* (0.0596)	-0.0575 (0.0705)	0.0157 (0.0720)
Dummy for married	0.1299 (0.0981)	0.0566 (0.0683)	0.1835** (0.0873)	0.0405 (0.0756)
Dummy for good health	0.3350*** (0.0998)	0.3486*** (0.0955)	0.1781 (0.1825)	0.0799 (0.1355)
Dummy for normal health	0.3287*** (0.1154)	0.2816*** (0.0964)	0.1588 (0.1864)	0.0376 (0.1379)
Family size	-0.0665** (0.0300)	-0.0283 (0.0227)	0.0082 (0.0368)	-0.0273 (0.0278)
Workers	-0.0897 (0.1175)	-0.0733 (0.1232)	0.1274 (0.2012)	-0.3893*** (0.1354)
Professional staff	0.2623* (0.1367)	0.2472* (0.1300)	0.3989* (0.2034)	-0.0778 (0.1427)
State-owned enterprises	-0.0786 (0.0743)	-0.1008** (0.0511)	-0.0279 (0.0832)	-0.2724*** (0.0787)
Collective enterprises	-0.2943*** (0.0983)	-0.1603** (0.0790)	-0.1882 (0.4413)	-0.3629*** (0.1261)
Private enterprises	-0.3526*** (0.0948)	-0.1702** (0.0732)	-0.1721 (0.1277)	-0.4923*** (0.1054)
Foreign and joint-venture	0.0336 (0.1175)	0.3220*** (0.0920)	0.1427 (0.1404)	-0.1290 (0.1109)
Dummy for Wuhan	-0.6412*** (0.1033)	-0.3503*** (0.0536)	-0.3462*** (0.1059)	-0.6517*** (0.0736)
Dummy for Shenyang	-0.7270*** (0.1241)	-0.4760*** (0.0684)	-0.6185*** (0.1027)	-0.7921*** (0.0876)
Dummy for Fuzhou	-0.4062*** (0.1067)	-0.2311*** (0.0606)	-0.1282 (0.0955)	-0.1817** (0.0821)
Dummy for Xian	-0.7602*** (0.0958)	-0.5189*** (0.0483)	-0.6447*** (0.1010)	-0.7532*** (0.0874)
Constant	1.8408*** (0.3153)	0.8870*** (0.2171)	0.5545 (0.4212)	2.2096*** (0.3000)
Prob>F	0.0000	0.0000	0.0000	0.0000
R^2	0.3157	0.3734	0.4887	0.4078
Observations	433	810	268	470

Notes: ***, ** and * indicate 1%, 5% and 10% significant levels, respectively.

3.4 Decomposition of wage differentials

To decompose the wage differentials, we need to calculate the means of all independent variables for females and males in each sector group. In Equation (1), the first term measures the within-sectoral wage differential due to the difference in the mean values of individual endowments between the two sexes. The second term represents the within-sectoral wage differential due to the difference in the wage equation coefficients estimated for females and males in each sector group. The third term captures the portion of the wage gap explained by differences in the sectoral distribution caused by variances in female and male endowments. The fourth term indicates the portion of the wage gap due to unexplained differences in sectoral distributions between females and males.

Table 8 gives the decomposition results. The differential of mean log hourly wages between females and males is 0.24. Of this, 0.2234 or 93.1 per cent is attributed to within-sectoral wage differentials, while 0.0165 or 6.9 per cent is attributable to wage differentials caused by sectoral distribution differences. In China's urban labour market, the wage differentials between females and males are mainly caused by within-sectoral wage differentials.

Of the 0.2234 within-sectoral wage differential, the contribution of individual endowment is 0.0149 or 6.19 per cent and the unexplained portion remains 0.2086 or 86.91 per cent. Of the 0.0165 inter-sectoral wage differential, the contribution of individual endowment is 0.0018 or 0.76 per cent and the unexplained portion is 0.0147 or 6.14 per cent. Overall, 6.95 per cent of the total urban wage differential between females and males can be attributed to differences in individual endowment and the unexplained portion is 93.05 per cent, which may be attributed mainly to discrimination favouring males.

Table 8
Decomposition results of wage differentials between females and males

	Log hourly wage	% of total	% of intra-sectoral	% of inter-sectoral
Total wage differential	0.2400	100.00		
Intra-sectoral	0.2234	93.10	100.00	
Explained	0.0149	6.19	6.65	
Unexplained	0.2086	86.91	93.35	
Inter-sectoral	0.0165	6.90		100.00
Explained	0.0018	0.76		11.01
Unexplained	0.0147	6.14		88.99
Total explained	0.0167	6.95		
Total unexplained	0.2233	93.05		

4 Conclusion and policy implications

While confirming the significant existence of earning differentials between genders, the decomposition results suggest that the gap is overwhelmingly generated within sectors. Within a sector, 93.35 per cent of the wage differentials cannot be explained by human capital and other individual characteristics, and therefore can be attributed to

discrimination. This discrimination can take various forms. First, employers simply pay lower wages to women regardless of their performance on the job. Second, female employees have fewer opportunities for promotion, irrespective of job satisfaction, which in turn leads to women being paid a lower wage rate. These empirical results indicate that policy efforts should be directed to reducing within-sector wage gap through labour regulations that guarantee equal pay and equal opportunity.

Less than 7 per cent of total gender wage differences are inter-sectoral, of which 88.99 per cent can be attributed to discrimination. Although the absolute magnitude is not significant, sectoral barriers do prevent women from entering certain sectors that have a stronger gender monopoly. In their decomposition of wage differential components by sector and region, Cai, Du and Wang (2005) find that the sectoral contribution in total wage differentials has shown an increase relative to the regional contribution, which implies the existence of sectoral monopoly. Therefore, eliminating the discrimination against women in entering certain sectors can be achieved through labour market development and entry barriers reduction.

About 6.65 per cent of intra-sectoral wage differentials and 11.01 per cent of inter-sectoral wage gap are caused by disparities in human capital endowment between men and women, while 6.95 per cent of the overall attribution of gender wage differentials can be explained by human capital and other individual characteristics. For urban workers, no difference is observed between men and women in education and health; in fact, the share of female workers participating in job training is 2.85 percentage points higher than that for male workers. But there is still one factor of concern. Urban unemployment has become severe since the late 1990s, and employment is undergoing a process of informalization, which induces urban poverty. A previous study finds that as educational levels increase, the enrolment gap between boys and girls widens, and can be very big at the higher education levels; i.e., male enrolment is 100 per cent higher than female (Cai and Wang 2001). This gap reflects the Chinese families' preference of educational investment for boys rather than girls. When households face budget constraints, they tend to cut expenses with regard to girls' education. Therefore, paying attention to this fact, and perhaps even intervention in an appropriate way, is necessary to prevent gender discrimination in the labour market.

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