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# Gender Earnings Differential in Urban China

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## Abstract

This study uses survey data collected from five large cities in China to describe and decompose the earnings difference between female and male workers. The results indicate that the main source of lower earnings for females lies in unequal pay within sectors, and that the earnings gap due to differences in sectoral attainment is relatively small. The results also reveal that most of the gender earnings differential is attributable to sex discrimination rather than to the gender difference in the endowment of human capital. Therefore, eliminating discrimination against females within individual sectors is effective in narrowing the gender earnings gap.

## 1. Introduction

In the pre-reform period, the state-owned and collective-owned enterprises, which dominated the Chinese economy, did not have the autonomy to hire and fire workers. Everyone living in urban areas, men and women, of working age were entitled to, and provided with, an assigned job by the government. The target of the employment policies under that system was to guarantee full employment with low and relatively equal wage rates. Lacking operational autonomy and responsibility, the enterprises had no right to decide on wage rates, and they did not have incentives to do so (Lin et al., 2001). As a consequence, the average wage level in urban China did not change much from the early 1950s to the late 1970s, nor did it reflect differences in individual characteristics and efforts of employees.

The economic reforms that began in the late 1970s have granted more and more autonomy to the state-owned and collective-owned enterprises, permitting them to behave like market participants. At the same time, non-state and private enterprises have expanded rapidly and become dominant players in output and factor markets. Accompanying the structural change in ownership, market forces have increasingly played a role in resource allocation. As a result of the privatization and marketization drive, more and more of the labor force is allocated through markets rather than administration. A surprising consequence is that the wage gap between female and male workers has been observed to be on the rise in urban China (Gustafsson and Li, 2000; Maurer-Fazio et al., 1999).

Different arguments exist for explaining the increased wage gap. According to one view, as the labor market develops, returns to human capital increase and the

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differences in educational attainments and work skills between female and male workers become reflected in earnings differentials. This view is supported by studies that find rapid increases in returns to education in post-reform China (Lai, 1999; Li et al., 1999). If the educational attainment of females is significantly lower than that of males, the gender earnings differential would surface once the labor market starts to function. Based on data from the national census conducted in 2000, the average number of years of schooling for women was 1.1 years lower than for men in China as a whole, while the gap was 0.93 years in urban China. Gustafsson and Li (2000) suggest that the most important source of the gender wage difference is education, while discrimination is secondary. Liu et al. (2005) find that the female/male wage ratio deteriorated by about 5 percentage points from 1988 to 2001, mainly due to increases in returns to observed and unobserved skills that weigh the skill deficit of women more heavily. What also matters is the enlarged gap in unobserved skills between genders or increased discrimination. Another study (Mason et al., 2000) found that in rural China, the unexplained component of the observed gender wage gap had been constant, but its relative importance had declined from 1988 to 1995.

An alternative explanation lies in the changed enterprise behavior under the market environment. In post-reform China, enterprises have become profit-driven even when making employment decisions. For whatever reasons, employers may value female workers less, hiring fewer women and/or paying them less. If the differences in education and other individual characteristics cannot explain all of the gender earnings differential, there must be discrimination in the labor market. Some studies suggest that human capital is not the only factor explaining this differential. Even with profit maximization and managerial autonomy, if the labor market has not matured enough to properly evaluate human capital, gender may become a "signal" for presuming worker performance. This is similar to the "sheepskin effects" in determining returns to education (Hungerford and Solon, 1987). During the reform process, the behavior of state-owned enterprises is still different from their non-state counterparts, and the latter operate more like true market participants than the former. This is confirmed by Maurer-Fazio and Hughes (1999) who find significant differences in gender earnings differential between state and non-state sectors. Liu et al. (2000) discover that the component of the gender earnings gap attributable to pure discrimination declines progressively from state-owned, to collective-owned, and to private enterprises. According to Meng (1998), the gender earnings differential is fully attributable to discrimination for those who were assigned jobs by local governments. But for those who obtained jobs through job-hunting, only two-thirds of this differential can be associated with discrimination.

It is worth noting that most previous studies on China focus on differences in wage discrimination against women based on different forms of ownership or on the relationship between wage discrimination and degree of marketization. This is despite a vast international literature demonstrating inter-sector wage disparity as an important component of the overall wage gap. For example, after controlling for factors such as education, ability, trade union activities, short-term labor demand, and job hazard which differ across sectors, significant wage differentials are still found among sectors (Katz, 1986). Even in countries with advanced labor markets, inter-sector wage differentials remain (Krueger and Summers, 1988; Dickens and Katz, 1987). In a decomposition of wage differentials by sector and region, Cai et al. (2005) find that the sectoral contribution to total wage differentials in China increased more relative to the regional contribution, implying the possible existence of sectoral monopoly. In short, the existing gender earnings gap in urban China may stem from both human capital

difference and pure discrimination. And the inter-sector difference in earnings can be an important contributor as well.

Against this background, the main purpose of this study is to analyze the magnitude of gender earnings differential and its components. We seek to answer the following questions: (1) How much can gender earnings differential be explained by human capital difference and how much can be attributed to discrimination? (2) To what extent is the gender earnings differential due to inter-sector or intra-sector differences? And finally (3) what are the relevant policy implications?

The rest of the study is organized as follows. Section 2 presents preliminary data analysis, showing sectoral distributions of labor force and differences in educational attainments between female and male workers. This is followed by wage decomposition in section 3, where different components of the gender wage gap are estimated and discussed. Section 4 concludes with policy implications.

## 2. Sectoral Distribution and Human Capital Difference

The data used in this study are from the China Urban Labor Survey (CULS), which was conducted in 2001 by the Institute of Population and Labor Economics at the Chinese Academy of Social Sciences (CASS-IPLE). The survey covered five large cities: Shanghai, Wuhan, Shenyang, Fuzhou, and Xian. In each city, the proportional sampling technique was utilized to select 10 urban households in each of 70 neighborhood clusters and 10 migrants aged 16 or older in each of 60 neighborhood clusters. In this study, only data on urban households will be analyzed. The urban household survey included three parts: a household questionnaire, an individual questionnaire and a community questionnaire. Household information was obtained by interviewing the household head. Every household member aged 16 and above who were no longer in school was interviewed to obtain information on individuals. The community information was collected by interviewing community officials.

As far as industry of employment is concerned, the individual questionnaire contained a list of twenty-one sectors for interviewees to tick. We first merge these sectors into sixteen sectors according to the categorization of the National Bureau of Statistics. To ensure reasonable sample sizes for sectoral analysis, we further merge the sixteen sectors into four groups. This is done by sorting, in ascending order, the average wages of these sixteen sectors, which are published in the *China Statistical Yearbook 2002*, and then classifing the sixteen sectors into four groups.[1] The first group includes farming, forestry, animal husbandry and fishery, mining and quarrying, construction, wholesale and retail trade, and catering services. Group two includes manufacturing, geological prospecting, water conservation, education, culture and arts, radio, film and television, and social services. The third group includes government agencies, party agencies and social organizations, health care, sports and social welfare, real estate, and enterprise management organizations. The fourth group of sectors includes transport, storage, post and telecommunications, production and supply of electricity, gas and water, finance and insurance, scientific research, and polytechnic services. The average level of wage increases gradually from the first group to the fourth group, which may imply increased degrees of monopoly and entry barriers across the sector groups.

Relying on the CULS data, Table 1 presents sectoral distributions and hourly earnings of females and males aged 16–60. Since the earnings structure of self-employed workers is different from that of hired workers, these are excluded from our analysis. Table 1 shows clear differences in sectoral distributions between females and males. In the first three groups of sectors, females all account for larger shares than males,

*Table 1. Sectoral Distributions and Hourly Earnings for Females and Males*

| | *Sectoral distribution* | | | | *Hourly earnings (yuan)* | | | |
|---|---|---|---|---|---|---|---|---|
| | *Females* | | *Males* | | *Females* | | *Males* | |
| | *Freq.* | *%* | *Freq.* | *%* | *Mean* | *SD* | *Mean* | *SD* |
| First group of sectors | 284 | 20.37 | 333 | 18.42 | 4.78 | 3.81 | 5.48 | 3.38 |
| Second group of sectors | 649 | 46.56 | 773 | 42.75 | 4.48 | 3.17 | 5.66 | 4.39 |
| Third group of sectors | 251 | 18.01 | 263 | 14.55 | 5.50 | 3.72 | 7.05 | 4.23 |
| Fourth group of sectors | 210 | 15.06 | 439 | 24.28 | 6.24 | 5.97 | 7.24 | 7.24 |
| Total | 1394 | 100 | 1808 | 100 | 4.99 | 3.98 | 6.21 | 5.12 |

*Source*: Calculated from China Urban Labor Survey.

*Table 2. Sectoral Distributions for Females and Males*

| *Sector group* | *Urban China* | | | *Whole China* | | |
|---|---|---|---|---|---|---|
| | *Males* | *Females* | *Difference* | *Males* | *Females* | *Difference* |
| 1 | 38.08 | 38.87 | –0.80 | 71.27 | 76.21 | –4.94 |
| | (0.18) | (0.20) | (0.27) | (0.08) | (0.08) | (0.11) |
| 2 | 38.91 | 44.06 | –5.15 | 18.06 | 18.21 | –0.15 |
| | (0.18) | (0.21) | (0.27) | (0.07) | (0.07) | (0.10) |
| 3 | 10.27 | 9.20 | 1.07 | 4.81 | 3.24 | 1.57 |
| | (0.11) | (0.12) | (0.16) | (0.04) | (0.03) | (0.05) |
| 4 | 12.74 | 7.87 | 4.87 | 5.85 | 2.35 | 3.50 |
| | (0.12) | (0.11) | (0.16) | (0.04) | (0.03) | (0.05) |

*Note*: standard errors in parentheses.
*Source*: Calculated from 0.95% sampling data of population census in 2000.

whereas the proportion of females in the fourth group is lower. Thus, it seems easier for males to enter sectors with strong monopoly and high entry barriers. In addition, the difference in hourly earnings between females and males is quite large and it exists in all sectors.

To assess the representativeness of our sample, Table 2 tabulates the sectoral distributions of females and males computed from the 0.95% sampling data of the population census in 2000. Ideally, the relevant values in Table 2 should match those in Table 1. However, differences in the distributional patterns do exist. These may be caused by two factors. First, the CULS dataset covers hired workers only and excludes the self-employed, whereas the census data contain both. Second, the CULS data are from five large cities while the census data include all sizes of cities in China. The large cities tend to have a lower share of the primary sector than medium-sized and small cities.

In spite of the differences between the two sets of data, they share common features as far as gender difference in sectoral distributions is concerned. That is, both datasets indicate that in sectors with lower wages, females occupy higher proportions than males, while in sectors with higher wages, the proportion of female workers is lower

*Table 3. Summary Statistics of Individual Characteristics*

| | *Females* | | *Males* | | |
|---|---|---|---|---|---|
| *Continuous variables* | *Mean* | *SD* | *Mean* | *SD* | *Difference in mean* |
| Years of schooling (years) | 11.94 | 2.58 | 12.00 | 2.97 | 0.06 |
| Age (years) | 38.19 | 9.44 | 41.38 | 9.64 | 3.19 |
| Work experience (years) | 20.25 | 10.54 | 23.38 | 10.58 | 3.13 |
| *Discrete variables* | *%* | | *%* | | *Difference in %* |
| Married | 81.35 | | 83.85 | | 2.50 |
| Good health status | 52.01 | | 57.80 | | 5.79 |
| Average health status | 41.68 | | 37.28 | | –4.40 |
| Bad health status | 6.31 | | 4.92 | | –1.39 |

*Source*: calculated from China Urban Labor Survey.

relative to their male counterparts. And these differences between genders are statistically significant. Given the huge rural population, it is not surprising to observe the significant differences in the sectoral distribution between urban China and all of China (Table 2).

There are also gender differences in human capital endowments and individual characteristics. As Table 3 indicates, males have advantages over females in human capital indicators such as years of schooling, work experience and health status.[2] Relative to females, males have 0.06 more years of schooling and 3.13 more years of work experience. The proportion of females who have spouses is 81.35%, which is lower than that of males. The proportion of males with good health is 57.8%, which is higher than that of females.

The gender gaps in individual characteristics are also found in the 0.95% sampling data of the 2000 population census. For example, for workers aged 16 and above in cities, males have 0.29 more years of schooling and 1.8 more years of work experience than females. The proportion of females who have spouses is 78.01%, which is lower than that of males.

The difference in human capital is undoubtedly one of the most important factors that underlie gaps in sectoral attainment and earnings between females and males. If these gaps can be fully explained by individual endowment differences, there would be no systematic discrimination against females in the labor market. However, the above data analysis does not provide a conclusive picture on how gender gaps in individual endowments affect the sectoral attainment and earnings differential. Even if one can figure out the correlation between these gaps and earnings, it remains useful to quantify the extent to which the sectoral attainment and earnings differences between females and males are caused by the human capital gap and other institutional or unexplainable factors. It is also important to explore how inter-sector or intra-sector earnings differentials contribute to the overall earnings differences in China's urban labor market. These issues are addressed in the next section.

## 3. Discrimination against Female Workers

For historical and other reasons, females have been discriminated against for a long time in China. Generally speaking, human capital endowments and other personal

characteristics of workers are decisive in determining employment opportunities and levels of earnings. Only the unexplained portion of differences in work opportunity and pay can be considered as the result of labor market discrimination (Becker, 1957). We will address discrimination in work opportunities first and then turn to discrimination in earnings.

### *3.1 Discrimination in Sectoral Attainment*

To explore the issue of sex discrimination in work opportunities, a multinomial logit model can be employed to identify the determinants of sectoral attainments for males and females separately. Rather than estimating the structural form of the model, its reduced form will be used instead. The latter captures how determinants of sectoral attainments affect the probability ($P_{ij}$) of individual $i$ working in sector $j$. This model is given as

$$P_{ij} = \text{Prob}(y_i = \text{sector}_j) = \frac{e^{\beta_j' x_i}}{\sum_{k=1}^{J} e^{\beta_k x_i}}, \quad i = 1, \ldots, N, \; j = 1, \ldots, J \tag{1}$$

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. Model (1) will be estimated for females and males, respectively. The estimation requires choosing a reference group, whose coefficient is normalized to 0. In this case, coefficient estimates for other groups can be compared against those of the reference group. A positive estimate implies that the relevant variable enhances the relative probability of being in that sector relative to the reference group. In contrast, a negative estimate means that the variable reduces the relative probability of being in that sector.

In this study, the first group of sectors is taken to be the reference group. The independent variables to be considered include years of schooling, age, age squared, a dummy variable for marital status (no spouse = 0), two dummy variables for average health and good health (bad health = 0), and a group of four dummy variables for cities (Shanghai = 0). The estimation results are reported in Table 4.

The calculated $\chi^2$ statistic is 26.81. Hence, the null hypothesis that there is no difference in the equations explaining sectoral attainment between females and males is rejected at the 5% significance level. Based on the estimation result in Table 4, education exerts similar effects for both females and males. Taking the first group of sectors as the benchmark, schooling helps increase the probability of entering the second, third, and fourth group of sectors for females, and it helps increase the probability of entering the third group of sectors for males. As far as age is concerned, older females have higher probability of entering the second, third, and fourth group of sectors, and older males have higher probability of entering the second group of sectors. Turning to health status, males with average and good health are more likely to enter the second, third, and fourth group of sectors, compared to males with bad health. Females with good health are more likely to enter the fourth group of sectors, compared to females with bad health. All these are consistent with *a priori* expectations.

The gender disparity in sectoral attainment seemingly indicates that males and females are treated differently in the urban labor market. To further demonstrate this difference, one can predict the sectoral distribution for females by using the estimated parameters of the sectoral attainment model for males. This prediction reveals what sectoral distribution of females would have been if they were treated in the same way as males. The difference between actual and predicted values indicates the degree of

*Table 4. Multinomial Logit Modeling Results of Sectoral Attainment*

| | *Females* | | *Males* | |
|---|---|---|---|---|
| | *Coefficient* | *Standard error* | *Coefficient* | *Standard error* |
| | **Second group of sectors** | | | |
| Years of schooling | 0.077** | 0.031 | 0.029 | 0.023 |
| Age | 0.265*** | 0.067 | 0.114* | 0.061 |
| Age squared | –0.003*** | 0.001 | –0.001 | 0.0001 |
| Dummy for married | –0.274 | 0.251 | –0.001 | 0.253 |
| Dummy for average health | –0.303 | 0.310 | 0.922*** | 0.283 |
| Dummy for good health | –0.223 | 0.312 | 0.755*** | 0.279 |
| Dummy for Wuhan | 0.561** | 0.228 | –0.092 | 0.212 |
| Dummy for Shenyang | 0.548** | 0.267 | –0.330 | 0.225 |
| Dummy for Fuzhou | 0.418* | 0.215 | –0.464** | 0.209 |
| Dummy for Xian | 0.488** | 0.214 | –0.210 | 0.204 |
| Constant | –5.474*** | 1.263 | –2.852** | 1.227 |
| | **Third group of sectors** | | | |
| Years of schooling | 0.147*** | 0.037 | 0.136*** | 0.029 |
| Age | 0.226*** | 0.081 | 0.097 | 0.077 |
| Age squared | –0.002** | 0.001 | –0.001 | 0.001 |
| Dummy for married | –0.480 | 0.297 | –0.256 | 0.314 |
| Dummy for average health | 0.378 | 0.420 | 0.720* | 0.390 |
| Dummy for good health | 0.339 | 0.424 | 0.876* | 0.383 |
| Dummy for Wuhan | 0.049 | 0.278 | –0.267 | 0.276 |
| Dummy for Shenyang | 0.700** | 0.297 | 0.045 | 0.277 |
| Dummy for Fuzhou | 0.242 | 0.252 | 0.233 | 0.251 |
| Dummy for Xian | –0.619** | 0.288 | –0.658** | 0.277 |
| Constant | –6.964*** | 1.559 | –4.949*** | 1.559 |
| | **Fourth group of sectors** | | | |
| Years of schooling | 0.102*** | 0.039 | 0.035 | 0.026 |
| Age | 0.410*** | 0.095 | 0.086 | 0.067 |
| Age squared | –0.005*** | 0.001 | –0.001 | 0.0001 |
| Dummy for married | –0.367 | 0.314 | 0.054 | 0.271 |
| Dummy for average health | 0.657 | 0.509 | 0.760** | 0.3345 |
| Dummy for good health | 0.979* | 0.507 | 0.731** | 0.330 |
| Dummy for Wuhan | 1.044*** | 0.288 | 0.132 | 0.230 |
| Dummy for Shenyang | 0.884*** | 0.333 | –0.174 | 0.248 |
| Dummy for Fuzhou | 0.123 | 0.304 | –0.304 | 0.231 |
| Dummy for Xian | 0.2623 | 0.298 | –0.406* | 0.232 |
| Constant | –10.046*** | 1.774 | –2.223* | 1.324 |
| Log likelihood | –1702.26 | | –2288.16 | |
| Prob > $\chi^2$ | 0.000 | | 0.000 | |
| Pseudo $R^2$ | 0.041 | | 0.026 | |
| Observations | 1394 | | 1808 | |

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

*Table 5. Actual and Predicted Sectoral Distributions (%)*

| | *Actual* | *Predicted* | *Difference* |
|---|---|---|---|
| *Group of sectors* | *(1)* | *(2)* | *(2) – (1)* |
| Females | | | |
| 1 | 20.37 | 19.56 | –0.82 |
| 2 | 46.56 | 41.24 | –5.32 |
| 3 | 18.01 | 13.45 | –4.55 |
| 4 | 15.06 | 25.75 | 10.69 |
| Males | | | |
| 1 | 18.42 | 19.01 | 0.59 |
| 2 | 42.75 | 46.94 | 4.19 |
| 3 | 14.55 | 19.48 | 4.93 |
| 4 | 24.28 | 14.57 | –9.71 |

*Source*: Author's calculations.

discrimination in sectoral attainment against females. Similarly, the sectoral distribution for males can be predicted using the estimated parameters of the sectoral attainment model for females. It reveals what sectoral distribution of males would have been if they were treated as females. Table 5 reports the actual and predicted sectoral distributions.

Table 5 shows that if females were treated equally to males, their proportion in the first, second, and third group of sectors would have decreased by 0.82, 5.32, and 4.55 percentage points, respectively. Meanwhile, the proportion in the fourth group of sectors would have increased by more than 10 percentage points. In contrast, if males were treated the same as females, their proportion in the first, second, and third group of sectors would have increased by 0.59, 4.19, and 4.93 percentage points, respectively. And the proportion in the fourth sector would have decreased by almost 10 percentage points. These clearly confirm the existence of discrimination in work opportunities against females in urban China.

### *3.2 Discrimination in Earnings*

Earnings discrimination refers to wage differentials caused by pure fact of gender, race, or other identities. To explain the gender wage gap in urban China, the method developed by Brown et al. (1980) will be used to decompose the gender earnings differential. Assuming loglinear earnings functions for both male and female workers, the decomposition of Brown et al. (1980) can be expressed as:

$$\begin{aligned}\bar{E}^M - \bar{E}^F = {} & \sum\nolimits_j P_j^F \hat{\beta}_j^M \left(\bar{X}_j^M - \bar{X}_j^F\right) + \sum\nolimits_j P_j^F \bar{X}_j^F \left(\hat{\beta}_j^M - \hat{\beta}_j^F\right) \\ & + \sum\nolimits_j \bar{E}_j^M \left(P_j^M - \hat{P}_j^F\right) + \sum\nolimits_j \bar{E}_j^M \left(\hat{P}_j^F - P_j^F\right), \end{aligned} \tag{2}$$

where superscripts $F$ and $M$ index females and males, $\bar{E}^F$ and $\bar{E}^M$ are the mean earnings in logarithm for females and males, respectively; $\hat{\beta}_j^F$ and $\hat{\beta}_j^M$ are the estimated coefficients from sectoral-specific earnings equations; $\bar{X}_j^F$ and $\bar{X}_j^M$ are the mean values of individual endowments in sector $j$ for females and males, respectively; $P_j^F$ and $P_j^M$ are the observed proportions of female and male workers in sector $j$; and $\hat{P}_j^F$ is the

hypothetical proportion of females who would have been in sector *j* if they possessed the same sectoral distribution as males.

It is clear that undertaking the above decomposition requires estimation of the gender-specific earnings equation for each sector group. The earnings equation is specified as

$$\log(earnings) = \alpha + \beta_1 e + \beta_2 y + \beta_3 y^2 + \beta_4 m + \beta_5 h_a + \beta_6 h_g + \beta_7 c_2 + \beta_8 c_3 + \beta_9 c_4 + \beta_{10} c_5 + \varepsilon, \quad (3)$$

where *earnings* is hourly earnings, $e$ is years of schooling, $y$ is work experience, $m$ is a dummy variable for marital status (no spouse = 0), $h_a$ is a dummy variable for average health (bad health = 0), $h_g$ is a dummy variable for good health, $c_2$ is a dummy variable for Wuhan (Shanghai = 0), $c_3$ is a dummy variable for Shenyang, $c_4$ is a dummy variable for Fuzhou, $c_5$ is a dummy variable for Xian, $\varepsilon$ is the error term. The estimation results of the earnings equations are reported in Table 6.

From Table 6, most coefficient estimates have the expected signs and are statistically significant, and the $R^2$ values are reasonable in all equations.[3] The results show that education has a significantly positive effect on earnings in all sectors for both females and males. As another proxy for human capital, work experience has no significant effects on earnings for either females or males in all groups of sectors. Average health status has positive and significant effects on the earnings for males in the first and second group of sectors. Good health status has positive effects on the earnings for females in the first group of sectors and for males in the first and second group of sectors. The significance of city dummy variables is consistent with the well-documented existence of regional income disparity in urban China.

Recalling equation (2), the first term measures the within-sectoral earnings differential due to the gender gap in individual endowments. The second term represents the within-sectoral earnings differential due to the difference in the coefficient estimates for females and males. The third term captures the portion of the earnings gap attributable to the explained difference in sectoral distributions. The fourth term indicates the portion of the earnings gap due to unexplained differences in sectoral distributions between females and males.

It is noted that there exists an index problem with the decomposition method of Brown et al. (1980). One way to solve this problem is to conduct the decomposition repeatedly, each time using a different reference group. A simple average of the decomposition results is then used for analysis (see Meng and Zhang, 2001). Table 7 presents the average decomposition results. The differential of mean log hourly earnings between females and males is 0.2338. Of this, 0.2195 or 93.91% is attributable to within-sectoral earnings differentials, while 0.0143 or 6.09% is attributable to sectoral distribution differences. Clearly, the gender earnings gap is caused mainly by within-sectoral earnings differentials in urban China.

Of the 0.2195 within-sectoral earnings differential, the contribution of difference in individual endowments is 0.0317 or 13.55%. Some 80% or 0.1878 of this differential is unexplainable. Of the 0.0143 inter-sectoral earnings differential, the contribution of difference in individual endowments is 0.0056 or merely 2.39% and the unexplained portion is 0.0087 or 3.7%. Overall, 15.94% of the total earnings differential between females and males can be attributed to individual endowments difference and the unexplained portion is 84.06%. By and large, this huge percentage value can be viewed as evidence of discrimination against females, though other unknown forces besides discrimination may contribute to this value.

*Table 6. Estimation Results of Hourly Earnings Equations*

| | *Females* | | | | *Males* | | | |
|---|---|---|---|---|---|---|---|---|
| | *(1)* | *(2)* | *(3)* | *(4)* | *(1)* | *(2)* | *(3)* | *(4)* |
| Schooling | 0.120 | 0.107 | 0.112 | 0.122 | 0.061 | 0.099 | 0.125 | 0.093 |
| | (7.73)*** | (11.76)*** | (4.89)*** | (6.96)*** | (4.66)*** | (14.71)*** | (10.92)*** | (7.63)*** |
| Experience | –0.008 | 0.001 | 0.008 | 0.009 | –0.014 | –0.008 | –0.013 | –0.014 |
| | (0.59) | (0.16) | (0.46) | (0.50) | (1.02) | (0.89) | (1.03) | (1.15) |
| Experience squared | 0.000 | –0.000 | –0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 |
| | (1.09) | (0.29) | (0.45) | (0.05) | (0.87) | (1.82)* | (2.04)** | (1.57) |
| Married | –0.003 | 0.143 | –0.232 | –0.081 | 0.227 | 0.039 | 0.182 | 0.069 |
| | (0.03) | (1.87)* | (2.13)** | (0.73) | (2.39)** | (0.58) | (1.83)* | (0.86) |
| Average health | 0.037 | 0.066 | 0.241 | 0.193 | 0.280 | 0.245 | 0.109 | –0.073 |
| | (0.32) | (0.88) | (1.06) | (0.80) | (2.47)** | (2.30)** | (0.65) | (0.43) |
| Good health | 0.221 | 0.089 | 0.341 | 0.347 | 0.332 | 0.316 | 0.184 | –0.051 |
| | (1.89)* | (1.26) | (1.58) | (1.39) | (2.94)*** | (2.98)*** | (1.13) | (0.30) |
| Wuhan | –0.683 | –0.383 | –0.390 | –0.639 | –0.530 | –0.349 | –0.334 | –0.664 |
| | (8.55)*** | (4.57)*** | (2.48)** | (5.92)*** | (5.53)*** | (6.12)*** | (3.27)*** | (8.75)*** |
| Shenyang | –0.604 | –0.549 | –0.460 | –0.767 | –0.506 | –0.506 | –0.525 | –0.766 |
| | (5.79)*** | (6.85)*** | (2.75)*** | (5.73)*** | (5.16)*** | (7.39)*** | (5.35)*** | (8.94)*** |
| Fuzhou | –0.352 | –0.186* | –0.258 | –0.309 | –0.235 | –0.183 | –0.047 | –0.233 |
| | (4.16)*** | (2.66)*** | (1.79)* | (1.98)** | (2.67)*** | (2.90)*** | (0.56) | (2.73)*** |
| Xian | –0.533 | –0.461 | –0.807 | –0.687 | –0.565 | –0.523 | –0.588 | –0.811 |
| | (6.03)*** | (6.82)*** | (5.05)*** | (5.68)*** | (6.29)*** | (10.06)*** | (5.76)*** | (9.57)*** |
| Constant | 0.197 | 0.157 | 0.245 | 0.210 | 0.846 | 0.307 | 0.082 | 1.146 |
| | (0.81) | (0.94) | (0.63) | (0.54) | (3.48)*** | (1.86)* | (0.35) | (4.15)*** |
| Prob > *F* | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| $R^2$ | 0.39 | 0.28 | 0.19 | 0.32 | 0.24 | 0.31 | 0.42 | 0.35 |
| Observations | 284 | 649 | 251 | 210 | 333 | 773 | 263 | 439 |

*Notes*: (1) refers to workers in the first group of sectors, (2) refers to workers in the second group of sectors, (3) refers to workers in the third group of sectors, (4) refers to workers in the fourth group of sectors. ***, ** and * indicate 1%, 5%, and 10% significance levels, respectively. Robust *t*-statistics in parentheses.

*Table 7. Decomposition Results of Gender Earnings Differential*

| | *Log hourly earnings* | *% of total* | *% of intra-sectoral* | *% of inter-sectoral* |
|---|---|---|---|---|
| Total earnings differential | 0.2338 | 100.00 | | |
| Intra-sectoral | 0.2195 | 93.91 | 100.00 | |
| Explained | 0.0317 | 13.55 | 14.44 | |
| Unexplained | 0.1878 | 80.36 | 85.66 | |
| Inter-sectoral | 0.0143 | 6.09 | | 100.00 |
| Explained | 0.0056 | 2.39 | | 39.16 |
| Unexplained | 0.0087 | 3.70 | | 60.84 |
| Total explained | 0.0373 | 15.94 | | |
| Total unexplained | 0.1965 | 84.06 | | |

*Source*: Author's calculations.

## 4. Summary and Policy Implications

This study focuses on earnings discrimination against females in urban China. Females are found to be treated unfavorably in terms of employment opportunities as well as wage rate. Decomposition results reveal that the gender earnings gap is overwhelmingly generated within sectors. Some 86% of within-sector earnings differentials cannot be explained by human capital and other individual characteristics, and can therefore be attributed to discrimination. Such discrimination can take various forms. For example, employers may simply pay lower wages to women regardless of their performance, a clear case of sex discrimination. As another example, female employees may find it harder to be promoted, no matter how they actually perform. This will eventually result in lower wage rates for females. In addition, females usually retire earlier than their male counterparts, partly due to a five-year difference in the legal retirement ages set for men and women in China. Based on our sample data, the average ages of retirement are 50 and 57, respectively, for females and males. This difference may also have contributed to the gender discrimination in various forms. Therefore, policy measures to prevent discrimination should focus on reducing the within-sector earnings gap by enforcing equal pay and equal promotion opportunities.

The inter-sectoral gender wage gaps contribute around 6% to the total gender earnings difference, of which almost 61% can be attributed to discrimination. Although the absolute value of this component is small, it does imply the existence of sectoral barriers which prevent women from entering sectors with stronger monopoly. These findings suggest that the Chinese government should continue to promote labor market development by reducing entry barriers and enhancing female labor mobility across sectors. Meanwhile, reforms aiming at elimination of monopoly or gender wage difference across sectors seem necessary in China.

Finally, human capital and other personal characteristics explain about 14% of intra-sectoral earnings differential, 39% of inter-sectoral earnings gap, and 16% of the overall earnings differential between male and female workers in urban China. Although these results do not imply huge gender gaps in education and health, they are by no means negligible. Moreover, previous studies found that the enrollment gaps between boys and girls become larger as one moves from primary education to secondary and then to higher education. At the higher education level, the gap is astonishing—male enrollment is 100% higher than female enrollment (Cai and Wang,

2001). This is caused by family preference for educational investment for boys over girls. When budget constraints become tight, Chinese families tend to cut expenditure on girls' education. Therefore, some form of government intervention is needed to ensure equal access to education, training, and healthcare for females.

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## Notes

1. This categorization may seem simple. It is used here in the absence of better alternatives, although there exists ongoing research, attempting to construct better indicators of monopoly and entry barriers among sectors.
2. Work experience is equal to age minus 6 minus years of schooling.
3. We also estimated pooled regressions for females and males. The results (available upon request from the authors) show that the dummy variable for female is significantly negative.