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# **Women's Employment and Industrial Restructuring in China: Investigation Using Urban Household Surveys**

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**Final Report for 5<sup>th</sup> PEP Meeting**

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## **Abstract**

In the past decade, China's public enterprises underwent dramatic ownership reforms and labor retrenchment. While industrial restructuring is an inevitable feature of market transition, the reforms have affected men and women differently. Studies show that women are currently bearing a disproportionate share of the costs of adjustment. Women face higher inactive and unemployment rates than men. The deterioration of women's employment status makes the feminization of urban poverty a real possibility. The objectives of this project are to examine the underlying causes of the change in female labor force participation rates (FLFPR) and to analyze the gender differences in the determination of the probabilities of reemployment in post-restructuring urban China using three nation-wide household surveys. The investigation intends to shed light on the following questions: 1) Why do a large number of working-age women have left the labor force following the restructuring? 2) Does the fall in FLFPR reflect a genuine choice of women? 3) Why are female's unemployment spells are longer than male's? 4) To what extent is the gender disparity in unemployment durations attributable to labor market structural and other institutional factors and to observed individual characteristics? Better understanding of the nature of the fall in FLFPR and the causes of gender disparity in unemployment is of critical importance; it helps to design gender-sensitive public policies to alleviate the pain of economic adjustment borne by women and to seek gender equitable solutions for urban unemployment.

This program is divided into two independent papers. The first paper named as "The Changing Patterns of Male-Female Labor Force Participation in Urban China" tries to answer the first two questions. The second paper-"Why Women Have Longer Unemployment Durations Than Men in Post-Restructuring Urban China" focuses on the second two questions.

# **The Changing Patterns of Male-Female Labor Force Participation in Urban China**

## **Abstract**

In the late 1990s, China's state sector underwent large-scale labor retrenchment. The state-sector downsizing led to a sharp decline in labor force participation (LFP) in the cities, and the change was more dramatic for women than men. In this paper, we study the changing patterns of male-female labor force participation in the post-restructuring period using two cross-sections of observations derived from China's Urban Labor Force Surveys in 1997 and 2002. The analysis intends to shed light on the following questions: 1) Why a larger number of working-age women have left the labor force following the restructuring? 2) Why women's LFP rate dropped more markedly than men's? 3) To what extent the fall in LFP rates are attributable to differences in preferences and institutional factors and to observed characteristics? We first estimate determinants of labor force participation of married men and women in 1997 and 2002 and then decompose the changes between the two periods and the gender gap in each period. The results suggest that China's gender differentiated retirement policies, rising education requirements, and the loss of childcare and maternity benefits be among the major factors that attributed to the increased gender gap in LFP rates. Most of the change in LFP rates is attributable to the differences in regression parameters between the marginal propensity of re-employment (as measured by differences in their parameters) instead of male-female differences in measured demand and individual characteristics.

## **1. Introduction**

Studies on East and Central Europe report that the job losses following the public sector restructuring have often been translated into falling participation rates for men and women (Gregory, et al., 1998). Studies on China show that the LFP is also decreasing since the radical reform policy took place in late 1990s'. Meng (2002) finds that the pattern of women's labor force participation in Mainland is very different from that in Tai Wan in the year of 1995. However, no research studies how the patterns of labor force participation changes in the industrial restructuring in China. Our research tries to fill this gap. What's the difference between males and females? What are the reasons behind this difference? How are the gender differentials changing over time? We'll answer all the above questions using the two national-representative urban labor force surveys that were undertaken by China's National Bureau of Statistics in October 1997 and October 2002. In the mean time, Probit model, Oaxaca decomposition, and Even and Macpherson decomposition will be adopted.

The paper is organized as follows. We next introduce data and compute descriptive statistics to discern the patterns of changes, characteristics of active and inactive men and women. Section 3 introduces the methodology that we used. Section 4 discusses the regression results of unemployment duration determination. The final section summarizes the main results and discusses their policy implications.

## **2. Data and Descriptive Analysis**

The analysis of labor force participation is based on two national-representative urban household surveys that were undertaken by China's National Bureau of Statistics in October 1997 and October 2002. The two surveys cover more than 300,000 households in cities located in China's 31 provinces and provincial equivalent municipalities. The data provides information on economic activities, age, education, residential status, and the demographic characteristics of household members. Because the public downsize took place in a full gear only at the end of 1997, the two cross sections of observations enables us to make a before- and after-restructuring comparison.

[table 1.1]

Table 1.1 presents the labor force participation rates (defined as the proportion of those 16 and older declaring an attachment to the labor market) obtained from the two Labor Force Surveys. As can be seen from the table, urban labor force participation rates declined dramatically during the 1997-2002 period --from 78.6 to 71.6 per cent for men and 64.6 to 54.1 per cent for women. The overall female participation rate fell more than the male rate—by 3.5 percentage points, and the ratio of female to male activity rates decreased from 0.82 to 0.76.

Gender differences are further revealed when the participation data is broken down by age. The reduction for men is heavily concentrated in the extreme age groups. The sharp decline in the participation rate of the youngest groups of working age is primarily a reflection of the sensitivity of educational participation rates to the state of the labor market. A large proportion of men aged over 50 have left the workforce because of the policy of early retirement that firms introduced to shed redundant workers. In contrast, the changes in female economic activity rates are skewed towards the young and mid-age groups. While, as with men, the largest drop in the participation rate for women is observed among those aged between 16 and 24, the change is smaller for women than men. This result indicates that more school-age males stay out of the labor force to acquire higher education than their female counterparts. As a reflection of gender inequality in education, the female participation rate is higher than the male rate for the age group between 16 and 19, and the ratio of female to male participation rates for the group has increased from 1.09 to 1.25. For the age group between 25 and 54, the activity rate has decreased more markedly for women than it has for men, with the most dramatic reduction observed among women aged between 40 and 54.

The differences in labor force participation between men and women in the older age groups can be explained in part by China's gender differentiated retirement policy. The policy stipulates that the retirement age for white-collar employees is 60 for men and 55 for women. The retirement age for blue-collar workers is 55 for men and 50 for women. During restructuring, a widespread practice was to send workers into early retirement. This early retirement policy allowed workers to retire up to five years earlier than the official retirement age, so that female (blue collar) workers retire at 45 and male workers retire at 50. Mandatory premature retirement hurts women more than men by forcing them to withdraw from the labor force earlier than men and consequently lowering their pension income. Despite gender inequality, retirement provides displaced

workers with income supports. However, the large decrease of activity rates among women in the younger age groups indicates that many women have withdrawn from the labor market with no earnings. The gender differences in the change of activity rates by age suggest that men withdraw from the labor market under more favorable terms than women.

[table 1.2]

This conclusion is confirmed by the decomposition of the inactive urban population presented in Table 1.2. In both 1997 and 2002, students accounted for a larger share of the inactive aged above 15 for men than for women, and the gender gap in educational participation increased over time. Among the non-student inactive population, the majority of men were pensioners; by contrast, most of the women were housekeepers who had to rely on the supports of spouses or other family members for livings. Even among the inactive elderly, the gender disparity in pension entitlements was noticeably large, although falling slightly between 1997 and 2002. Thus, women have been more adversely affected than men by the restructuring in that not only have more women withdrawn from the labor market but also more have exited with a greater degree of economic dependence and vulnerability.

Looking at the changes in activity rates by education attainments, however, we note that the gender impact of the restructuring is not uniform. As Table 3 reveals, while a positive correlation between labor force participation rates and education attainment is observed for both men and women, the change in the ratio of female to male rates is decreasing with the level of education—falling by 16 percentage points between 1997 and 2002 among those who did not finish primary schools but only 4 percentage points among those with post-secondary education. Clearly, education is becoming important in determining labor market participation, especially for women.

This study, however, focuses only on urban, non-agricultural, married residents, because the industrial restructuring more affect the urban residents. Table1.3 shows the labor force participation rate.

[table 1.3]

For married women, the LFPR declines much more dramatically than married men, even if the LFPR for men is much higher than women. During the 1997-2002 period, the LFPR declined

from 73.54 to 66.82 per cent for women and 92.95 to 90.16 per cent for men. The LFPR for women is lower than men in each group, especially in the younger and older group.

The LFPR gap is larger for women than men by education level. It shows that women with higher education attainment are more likely to participate in the labor market and their LFPR is more close to men's.

LFPR is determined not only by the human capital of the agents', which determines his/her wage level, but also by the demographic characteristics of his/her households, which will affect his/her reservation wage. Table 1.4 shows the summary statistics for the variables.

[table 1.4]

Table 1.4 reveals the following facts. First, there are more younger women and less elder women relative to their men counterparts in the economic active population. The reasons behind this are that women have less schooling years and their official retirement ages are lower than men by five years. Second, if we break the data by education attainment of the agents', we'll find that more women are illiterates or semi-illiterates, or primary school graduates. Third, if we break the data by education attainment of the spouses', we'll find that women match with their husband in education attainment. Fourth, if the data are broken by the age of the children's, we find no much difference between women and men.

### 3. Methodology

The LFPR of both men and women haven't fallen down from 1997 to 2002. In order to find the determinants of the falling-down LFPR, we first estimate the LFP equation by gender in each of the two periods. On the basis of the LFP equation, some decompositions are used to identify the gender discrimination in LFP.

#### 3.1 Labor force participation equations

We first estimate the determination of labor force participation by married men and women in each period using probit regression analysis. The probit model of propensity of attend the labor market is specified as follows:

$$P(y=1|X)=\Phi(X'\beta) \quad (1.1)$$

Where  $\Phi$  is the cumulative density function of a standard normal random variable.  $y$  is a binary indicator of labor force participation;  $X$  contains variables which affect workers' labor

force participation. Such variables should proxy for the market wage offer, reservation wage, and the opportunity cost of working. Age group and the level of education attainment are used to proxy women's market age offers. The spouse's age group and education level as well as living arrangement are used to proxy family wealth. The children age group are used to proxy the opportunity cost of working.  $\beta$  is a vector of unknown parameters.

We'll estimate the LFP equations by gender over the two years of 1997 and 2002. The estimates of these changes will throw light on how the restructuring has affected the attachment of childbearing-age women to labor markets and to what extent women's withdrawals from the labor force were due to the calculation of consumption-leisure tradeoff and to what extent they were forced to leave by their discouraging prospects of finding new jobs after being laid off from state-owned enterprises.

### 3.2 Decomposition of the LFPR

As a second step toward assessing the determinants of LFPR difference between men and women in each period, as well as the 1997-2002 changes for men and women. To do this, we employ the ordered probit decomposition proposed by Jones and Makepeace(1996). This is similar to the Oaxaca(1973) decomposition.

$$\bar{P}_M - \bar{P}_F = \left[ \Phi(\bar{X}_M \hat{\beta}_M) - \Phi(\bar{X}_M \hat{\beta}_F) \right] + \left[ \Phi(\bar{X}_M \hat{\beta}_F) - \Phi(\bar{X}_F \hat{\beta}_F) \right] \quad (1.2)$$

$$\bar{P}_{02} - \bar{P}_{97} = \left[ \Phi(\bar{X}_{02} \hat{\beta}_{02}) - \Phi(\bar{X}_{02} \hat{\beta}_{97}) \right] + \left[ \Phi(\bar{X}_{02} \hat{\beta}_{97}) - \Phi(\bar{X}_{97} \hat{\beta}_{97}) \right] \quad (1.3)$$

Where  $\bar{P}$  is the represents the mean LFPR.  $\bar{X}$  is a vector of the variables's means used in Equation (1.1) and the  $\hat{\beta}$ s are the estimated coefficients. The subscript M, F, 02 and 97 indicated the men, women, the year of 2002 and 1997. The first component of the right-hand side of the Equation (1.2) and (1.3) explains the difference or change due to the estimated coefficients. This part captures the changes due to the solely changes in the labor market structures during the 1997-2002 period. The second term explains the difference due to the mean characteristics change by gender or over time.

For understanding the role played by changes in either each variable or coefficients, we disaggregate the two components of Equation(1.2) and (1.3) into j subcomponents. Even and Macpherson(1990) devise a probit decomposition technique which is shown below:

$$\Delta X_{gj} = \left[ \Phi(\bar{X}_M \hat{\beta}_F) - \Phi(\bar{X}_F \hat{\beta}_F) \right] \times \left[ (\bar{X}_{Mj} - \bar{X}_{Fj}) \hat{\beta}_{Fj} \right] / \left[ (\bar{X}_M - \bar{X}_F) \hat{\beta}_F \right] \quad (1.4)$$

$$\Delta \beta_{gj} = \left[ \Phi(\bar{X}_F \hat{\beta}_M) - \Phi(\bar{X}_F \hat{\beta}_F) \right] \times \left[ (\hat{\beta}_{Mj} - \hat{\beta}_{Fj}) \bar{X}_{Fj} \right] / \left[ (\hat{\beta}_M - \hat{\beta}_F) \bar{X}_F \right] \quad (1.5)$$

$$\Delta X_{yj} = \left[ \Phi(\bar{X}_{02} \hat{\beta}_{97}) - \Phi(\bar{X}_{97} \hat{\beta}_{97}) \right] \times \left[ (\bar{X}_{02j} - \bar{X}_{97j}) \hat{\beta}_{97j} \right] / \left[ (\bar{X}_{02} - \bar{X}_{97}) \hat{\beta}_{97} \right] \quad (1.6)$$

$$\Delta \beta_{yj} = \left[ \Phi(\bar{X}_{97} \hat{\beta}_{02}) - \Phi(\bar{X}_{97} \hat{\beta}_{97}) \right] \times \left[ (\hat{\beta}_{02j} - \hat{\beta}_{97j}) \bar{X}_{97j} \right] / \left[ (\hat{\beta}_{02} - \hat{\beta}_{97}) \bar{X}_{97} \right] \quad (1.7)$$

where  $\Delta X_{gj}$  and  $\Delta \beta_{gj}$  is defined as the  $j$ th component of each part of Equation (1.2).

$\Delta X_{yj}$  and  $\Delta \beta_{yj}$  is defined as the  $j$ th component of each part of Equation (1.3).

## 4. Empirical results

Following the methodologies outlined above, this section provides empirical results to show that controlling for other factors, the decision of women's to enter the labor market is more likely affected by the education attainment and the family characteristics.

### 4.1 Labor force participation

Due to behavioral differences, Equation (1.1) is estimated separately for married women and men in both years. The results are present in Table 1.5. The base group is age 20-24, illiterate and semi-illiterate, having no child, living without parents, spouse age 20-24, spouse illiterate and semi-illiterate, living in city, and living in Beijing group.

[table 1.5]

First, let's analyze the gender difference in LFR. For both men and women, age has an inverse U-sharp relationship with labor force participation except men in 1997. Of course, the inverse U-sharp for men is much plainer. This means that women aged over 50 have a sharp decline in LFP. The highly educated people are more likely to participate in labor market for both women and men in both years. The magnitude for women is larger. With college and above degree, women increase the probability of participating labor market more than 30% comparing with illiterate and semi-illiterate women. While the men increase only more than 10%. It indicates that the effect of education is stronger for women to increase the LFP than men.

The children's age has strong impact on women's participation but has no impact on men's. Women with children under 6 quit from labor market significantly comparing the women without child. Women with children aged 6-22 are likely to participate in labor market. Women with

children aged over 22 quit from labor market again. Having child increases men's participation significantly except that when the men have adult children aging above 22. This means that women take more child care responsibility in the household and depend more on their child when they are older relative to men.

Living with parents, especially when their parents are younger than 75, increases the participation of women, but having no effect on men's. These reveal that parents can help women with child caring. The grandchild care by the grandparents improves women's competition in labor market.

The spouses' age, as the proxy of the experience, works in different way for women and men. Namely, women are more responsive than men. When the spouse's age of woman is below 35, her participation increases with the experience of her spouses'; when her spouse's age is older than 35, the participation begins to decrease; when her spouse is over 45 years old, her participation decline sharply in both years.

The spouse with higher education level has positive impact on the participation for both man and woman. However, for those women whose husbands have lower education level, their participation rates are lower. As for men, their LFPRs are higher comparing to the base group-illiterate and semi-illiterate. These results mean that in China, men are the main bread winner, and more women are the discouraged workers.

Next, let's study how the LFPR change over time. First, young workers' (younger than 45) LFPR become higher and old people' (older than 45) LFPR become lower in 2002. This reveals that the escalating competition in urban labor market in China. In 2002, comparing with the illiterate and semi-illiterate group, education level has positive effect on LFPR, especially for those who have college and above, the effect is much stronger. This result shows that the return to higher education is increasing in terms of LFPR. The effect of children's age becomes stronger for both women and men over time. For those women who have children younger than 6, their LFPR decline much more in the year of 2002. And for those women who have children older than 6 and men with children, their LFPR become higher in 2002 than in 1997. These results reveal two facts in labor market in China: on one hand, both men and women with children have more pressure to participate in the labor market; on the other hand, the child daycare become more expensive as the public sector's diminishing. The two facts make women bear "double burdens"-child care in

household and earnings maker in labor market. In 2002, the effects of living with parents become positively larger for women. This means in the escalating competitive labor market, the parents' help becomes more helpful, especially for women. In 2002, both wife and husband are more responsive to their spouses' experience. We find no much change in the effect of the spouse's education attainment (as the proxy of the income of the household) on men over time. This effect change a lot for women, however. Namely, women's LFPR decreases over time, especially for those whose husbands' education attainment is college and above. This means that the wealth effect might work as time goes by.

#### **4.2 Decomposition of the LFPR by gender**

In order to show how the difference in LFPR over time is explained by the observed and the coefficients, we decompose the LFPR by gender. Table 1.6 reports the decomposition of the difference in LFPR.

[table 1.6]

Table 1.6 shows that there is great difference between men and women in both the year of 1997 by 17.94% and 2002 by 25.59. Oaxaca decomposition shows that the differences due to differences in Xs are relatively small, namely, 5.1% in 1997 and 5.59% in 2002, accounting for about 28% and 22% of the difference in LFPR respectively. As a result, large part of the difference is explained by the coefficients. Correspondingly, the different behavior in labor market, expressed by the coefficient can explain 72% in the year of 1997 and 78% in 2002 of the differences LFPR between men and women.

Further disaggregating Equation 1.2 into Equation 1.4 and 15 suggests that most of the differences (0.0344 in 1997 and 0.0378 in 2002) in the Xs are explained by the education gap between men and women. That means that more educated men are easy to get jobs. Most of the differences between men and women in the coefficients are explained by the differences in the coefficients for age and education attainments.

#### **4.3 Decomposition of the LFPR by year**

In order to show how the gender difference in LFPR is explained by the observed and the coefficients, we decompose the LFPR by year. Table 1.7 reports the decomposition of the difference over time in LFPR.

[table 1.7]

Table 1.7 shows that the women's LFPR(-0.1101) drops much more than men's(-0.0336) during 1997-2002 period. The difference due to changes in Xs increases the LFPR both men and women. But the changes due to changes in  $\beta$ s decrease (0.1429 for women, 0.0386 for men). It indicates that women more likely change their behavior in labor market than men do.

Further disaggregating Equation 1.3 into Equation 1.6 and 1.7 shows that it suggests that most of the changes(0.0014 for women and 0.0031 for men) in the Xs are also explained by the educational changes. Most of the changes in the coefficients of the probit models are also explained by changes in the coefficients for educational controls.

## 5. Conclusion

This paper analyses the role of the public sector restructuring in relative LFPR between women and men from the year of 1997 to 2002. Using Labor Force Survey data from China N.B.S., we find that the gender disparity in LFPR over time is widening, from 17.94% to 25.59%.

When we look at the possible causes for the widening gap between women and men during the period of 1997-2002, we find that the difference is mainly driven by the change of labor market institution and the behavior of the labors expressed by the coefficients. In 1997, difference in coefficients explains about 72% of the gender difference in LFPR, while in 2002, the different coefficient can explain about 78%.

The labor force participation equations tell us that there are more female discouraged workers than male because most illiterates and semi-illiterates are women. Second, family responsibility hinders women from participating in labor market. Third, labor activity behavior of the household has changed over time. Women's labor activity doesn't increase in 2002 as significantly as in 1997, which we can call it the wealth effects.

The results suggest that Chinese government should enforce the laws and regulations aiming at improving the equality of being educated. Second, Chinese government should offer child care center to release the working hours of women.

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**Table 1.1: Urban Labor Force Participation Rates, by Gender, Age, and Education**

	1997			2002			Change(2002-1997)	
	Female	Male	F/M	Female	Male	F/M	Female	Male
Overall	64.6	78.6	0.82	54.1	71.6	0.76	-10.5	-7
<b>By age</b>								
16-19	44.3	40.5	1.09	26.4	21.1	1.25	-17.9	-19.4
20-24	85.6	90.9	0.94	71.7	76.2	0.94	-13.9	-14.7
25-29	87.3	97.3	0.9	78.6	94	0.84	-8.8	-3.3
30-34	88.6	97.4	0.91	78.7	95.1	0.83	-10	-2.3
35-39	88.8	97.4	0.91	77.9	94.6	0.82	-10.8	-2.8
40-44	86.3	97.3	0.89	74.3	92.5	0.8	-12	-4.8
45-49	71.1	95.6	0.74	58.7	89.9	0.65	-12.4	-5.7
50-54	44.4	86.1	0.52	31.6	76.7	0.41	-12.8	-9.5
55-59	21.8	62.7	0.35	16.4	52	0.32	-5.4	-10.7
60-64	13.6	28.8	0.47	6.6	19.7	0.33	-7	-9.2
65 and above	6	14.2	0.42	2.7	6.9	0.39	-3.4	-7.4
<b>By education attainment</b>								
Below primary	39.5	0.6	14.2	32.2	0.44	-9.4	-7.2	23.6
Primary	53.4	67.4	0.79	36.8	54.9	0.67	-16.6	-12.5
Junior high	74.9	84.9	0.88	59.3	76.4	0.78	-15.6	-8.5
Senior high	77.5	80.6	0.96	64.1	72	0.89	-13.4	-8.6
Post-secondary	84.1	85	0.99	76.4	80.6	0.95	-7.7	-4.4

Sources: 1997 and 2002 Urban Labor Force Surveys by N.B.S.

**Table 1.2: Inactive Urban Population Aged above 15, 1997 and 2002**

	1997		2002		Change (2002-1997)	
	Female	Male	Female	Male	Female	Male
<b>Distribution of inactive population (%)</b>						
Students	9.1	17	12.3	22.7	3.2	5.7
Pensioners	34.2	60.6	29.5	49.4	-4.7	-11.2
Housekeeping	40.1	3.4	39.8	4	-0.3	0.6
Disabled	8.4	7.9	6.7	7.5	-1.6	-0.4
Others	8.2	11.1	11.7	16.4	3.5	5.3
<b>Percentage of pensioners among the inactive elderly</b>						
By age						
55-59	63	89	56.3	79.9	-6.7	-9.1
60-64	58.3	91.9	58	88.7	-0.3	-3.2
65 and above	35.4	80	42.9	80.9	7.5	0.9

Notes: \* Source: 1997 and 2002 Urban Labor Force Surveys by N.B.S.

**Table 1.3: Labor Force Participation rate for urban, non-agricultural and married residents**

	1997		2002	
	<u>Women</u>	<u>Men</u>	<u>Women</u>	<u>Men</u>
Total	73.54	92.95	66.82	90.16
By age group				
20-24	77.74	98.17	67.26	97.54
25-29	84.26	98.51	76.81	97.75
30-34	87.04	98.29	80.67	97.30
35-39	88.17	97.79	80.97	96.81
40-44	85.50	97.54	78.22	94.48
45-49	69.77	95.97	63.47	91.77
50-54	42.90	86.45	34.24	80.19
55-59	19.65	61.97	18.68	55.38
By education attainment				
Illiterate or semiliterate	49.73	81.86	54.71	84.56
Elementary school	58.81	86.91	55.88	85.27
Junior school	73.06	93.01	61.51	88.70
High school	85.88	94.79	75.04	91.34
College and above	92.57	96.89	91.10	95.73
Number of observations	95105	89014	116907	110878

**Table 1.4: Summary statistics for variables for urban, non-agricultural and married residents**

	1997		2002	
	<u>Women</u>	<u>Men</u>	<u>Women</u>	<u>Men</u>
<b>Mean of age</b>	39.88	40.85	40.25	41.33
<b>Age(%)</b>				
20-24	3.12	1.35	2.52	0.95
25-29	13.34	10.45	10.83	7.87
30-34	18.12	18.17	18.17	17.31
35-39	15.26	16.16	19.29	20.17
40-44	17.87	19.17	14.39	15.66
45-49	13.38	14.46	15.61	17.10
50-54	9.94	10.42	11.48	12.46
55-59	8.96	9.82	7.71	8.48
<b>Education attainment (%)</b>				
Illiterate or semiliterate	6.29	1.47	4.66	1.21
Elementary school	20.86	15.47	18.57	12.34
Junior school	38.85	41.30	40.81	41.97
High school	25.66	26.75	24.64	27.10
College and above	8.34	15.01	11.31	17.38
<b>Spouse's characteristics</b>				

<b>Age(%)</b>				
Under 24	1.25	3.37	0.89	2.69
25-29	9.76	14.24	7.45	11.41
30-34	17.00	19.33	16.40	19.14
35-39	15.12	16.27	19.12	20.31
40-44	17.93	19.01	14.84	15.11
45-49	13.53	14.06	16.21	16.26
50-54	9.73	9.20	11.80	10.93
55-59	8.79	4.04	7.79	3.82
60 and above	6.89	0.48	5.50	0.33
<b>Education attainment (%)</b>				
Illiterate or semiliterate	2.13	5.30	1.48	4.14
Elementary school	16.63	19.73	13.28	17.55
Junior school	40.16	39.89	41.28	41.41
High school	26.14	26.49	26.72	25.24
College and above	14.95	8.59	17.24	11.66
<b>Living arrangement (%)</b>				
Not live with parents	92.64	92.34	92.26	91.98
Live with parents under 75	4.77	5.11	5.15	5.43
Live with parents 75 and above	2.59	2.56	2.59	2.58
<b>Children (%)</b>				
Without child	12.90	11.44	17.47	16.00
Having Child 0-2	7.74	8.26	7.13	7.53
Having Child 3-5	9.31	9.92	8.24	8.68
Having Child 6-11	25.04	26.65	20.04	21.10
Having Child 12-17	21.92	23.23	23.60	24.74
Having Child 18-22	10.31	10.51	10.28	10.64
Having Child 23 and above	12.78	9.97	13.24	11.32
<b>City type</b>				
City	76.27	76.21	68.52	68.34
Town	23.73	23.79	31.48	31.66
Number of observations	95105	89014	116907	110878

**Table 1.5: Regression Results of probit marginal effects**

	1997		2002	
	<u>Women</u>	<u>Men</u>	<u>Women</u>	<u>Men</u>
25-29	0.0385 (3.00)***	-0.0026 (-0.22)	0.0591 (3.85)***	0.0167 (1.07)
30-34	0.0577 (3.92)***	-0.0091 (-0.70)	0.0836 (5.05)***	0.0094 (0.56)
35-39	0.0744 (4.72)***	-0.0288 (-1.91)*	0.0902 (5.13)***	0.0022 (0.13)
40-44	0.0837 (5.02)***	-0.0235 (-1.59)	0.0782 (4.21)***	-0.0279 (-1.41)
45-49	-0.0180 (-0.94)	-0.0357 (-2.19)**	-0.0255 (-1.26)	-0.0449 (-2.15)**
50-54	-0.2415 (-10.35)***	-0.1378 (-5.71)***	-0.2968 (-13.28)***	-0.1380 (-5.24)***
55-59	-0.4682 (-18.04)***	-0.3536 (-10.24)***	-0.4589 (-19.17)***	-0.3568 (-10.08)***
Elementary school	0.0669 (6.13)***	0.0131 (2.52)***	0.0115 (0.76)	0.0020 (0.21)
Junior school	0.1652 (15.19)***	0.0306 (5.55)***	0.0612 (4.20)***	0.0172 (1.86)*
High school	0.2633 (26.03)***	0.0447 (8.79)***	0.2027 (14.39)***	0.0430 (4.87)***
College and above	0.2631 (34.56)***	0.0584 (14.95)***	0.3539 (30.21)***	0.0865 (11.71)***
Having Child 0-2	-0.0791 (-7.07)***	0.0101 (2.12)**	-0.1501 (-13.77)***	0.0143 (2.39)**
Having Child 3-5	-0.0170 (-1.68)*	0.0084 (1.98)**	-0.0265 (-2.63)***	0.0234 (4.44)***
Having Child 6-11	0.0091 (1.14)	0.0131 (4.09)***	0.0234 (2.94)***	0.0246 (6.26)***
Having Child 12-17	0.0516 (7.33)***	0.0136 (5.02)***	0.0435 (6.26)***	0.0216 (6.75)***
Having Child 18-22	0.0217 (3.02)***	0.0092 (3.78)***	0.0284 (3.83)***	0.0158 (4.94)***
Having Child 23 and above	-0.0137 (-1.93)**	0.0021 (0.89)	-0.0208 (-2.83)***	0.0016 (0.54)
Live with parents under 75	0.0186 (1.89)*	0.0017 (0.36)	0.0345 (3.75)***	-0.0006 (-0.12)
Live with parents 75 and above	0.0017 (0.15)	0.0050 (1.18)	0.0282 (2.28)**	-0.0013 (-0.23)
Spouse 25-29	0.0188 (0.98)	-0.0105 (-1.26)	0.0286 (1.11)	-0.0246 (-1.95)**

Spouse 30-34	0.0046 (0.22)	-0.0080 (-0.88)	0.0016 (0.06)	-0.0298 (-2.22)**
Spouse 35-39	-0.0243 (-1.07)	0.0025 (0.28)	-0.0341 (-1.22)	-0.0304 (-2.17)**
Spouse 40-44	-0.0434 (-1.82)*	-0.0021 (-0.22)	-0.0525 (-1.83)*	-0.0353 (-2.40)**
Spouse 45-49	-0.0831 (-3.26)***	-0.0106 (-1.02)	-0.0860 (-2.91)***	-0.0378 (-2.50)***
Spouse 50-54	-0.1628 (-5.87)***	-0.0276 (-2.31)**	-0.1412 (-4.61)***	-0.0789 (-4.53)***
Spouse 55-59	-0.2150 (-7.35)***	-0.0409 (-3.04)***	-0.2290 (-7.13)***	-0.1240 (-6.04)***
Spouse 60 and above	-0.2772 (-8.91)***	-0.0834 (-4.37)***	-0.3289 (-9.82)***	-0.2211 (-7.08)***
S Elementary school	-0.0374 (-1.93)**	0.0113 (3.62)***	-0.0146 (-0.60)	0.0057 (0.98)
S Junior school	-0.0162 (-0.88)	0.0184 (5.50)***	-0.0376 (-1.59)	0.0050 (0.86)
S High school	0.0271 (1.48)	0.0196 (5.63)***	-0.0124 (-0.52)	0.0101 (1.68)*
S College and above	0.0658 (3.68)***	0.0295 (8.22)***	0.0263 (1.11)	0.0223 (3.51)***
Town	0.0114 (2.50)***	0.0113 (6.44)***	0.0035 (0.75)	0.0131 (5.64)***
Number of observations	70931	65754	82878	78042
Wald chi2(55)	18516.95	9017.01	21118.56	11777.74
Prob > chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R2	0.3492	0.3077	0.2858	0.2535
obs. P	.7231	.9157	.6414	.8787
predict P (at x-bar)	.7819	.9613	.6717	.9277
Province Dummy	Yes	Yes	Yes	Yes

Notes: (i) \*, \*\*, \*\*\* indicate the significance levels at 10%,5%, and 1% respectively, using two-tailed tests.

(ii) T-statistics are in parentheses.

**Table1.6: Decomposition of the Labor Forcer Participant Rate by gender**

	1997		2002	
Differences in LFPR	0.1794		0.2559	
Differences due to differences in Xs	0.0510		0.0559	
Differences due to differences in $\beta$ s	0.1284		0.2001	
Disaggregation into j components	$\Delta X_j$	$\Delta \beta_j$	$\Delta X_j$	$\Delta \beta_j$
constant	0	0.1479	0	0.2654
Age	-0.0027	-0.0518	-0.0068	-0.0443
Education	0.0344	-0.0408	0.0378	-0.0531
Having child 0-5	-0.0004	0.0056	-0.0007	0.0130
Having Child 6 and above	0.0014	0.0065	0.0014	0.0119
Living arrangement	0.0001	-0.0001	0.0001	-0.0016
Spouse age	0.0241	0.0126	0.0273	-0.0260
Spouse education	-0.0056	0.0335	-0.0034	0.0272
Town	0.0000	0.0038	0.0000	0.0048
provinces	-0.0004	0.0111	0.0002	0.0028

**Table1.7: Decomposition of the Labor Forcer Participant Rate**

	Women		Men	
Changes in LFPR	-0.1101		-0.0336	
Changes due to changes in Xs	0.0328		0.005	
Changes due to changes in $\beta$ s	-0.1429		-0.0386	
Disaggregation into j components	$\Delta X_j$	$\Delta \beta_j$	$\Delta X_j$	$\Delta \beta_j$
constant	0	-0.0037	0	0.0103
Age	0.0014	-0.0034	-0.0001	0.0178
Education	0.0184	-0.1207	0.0031	-0.0285
Having child 0-5	-0.0004	-0.0033	-0.0001	0.0006
Having Child 6 and above	-0.0023	-0.0029	-0.0006	0.0003
Living arrangement	0.0000	0.0010	0.0000	-0.0003
Spouse age	0.0036	0.0047	0.0000	-0.0164
Spouse education	0.0054	-0.0288	0.0013	-0.0202
Town	-0.0012	-0.0021	-0.0002	-0.0011
provinces	0.0076	0.0163	0.0016	-0.0010

# **Why Women Have Longer Unemployment Durations Than Men in Post-Restructuring Urban China?**

## **Abstract**

In the past decade, China's public enterprises underwent dramatic ownership reforms and labor retrenchment. While industrial restructuring is an inevitable feature of market transition, the reforms have affected men and women differently. This paper examines gender differences in the determination of the duration of unemployment in post-restructuring urban China using data obtained from a national representative household survey. The investigation intends to shed light on the following questions: 1) Why are females' unemployment spells longer than males'? 2) To what extent are the differences in unemployment spells between women and men attributable to differences in preferences and institutional factors and to observed characteristics? The results confirm that laid off female workers have a lower probability of leaving unemployment than their male counterparts and their unemployment spells are longer. The analysis shows that most of the gender gap in unemployment durations is explained by male-female differences in the marginal propensity of re-employment (as measured by differences in their parameters) instead of male-female differences in measured demand and individual characteristics.

**Key words:** gender inequality, unemployment duration, Oaxaca-decomposition

## **1. Introduction**

In the past decade, China's public enterprises underwent dramatic ownership reforms and labor retrenchment. The deepening of public sector reforms has brought an end to the era of "cradle-to-grave" socialism and lifetime employment for state workers. While industrial restructuring is an inevitable feature of market transition, it has affected men and women differently. Studies show that women have borne a disproportionate share of the costs of adjustment. The deterioration of the employment status of women makes the feminization of urban poverty a real possibility in post-restructuring China. The rising gender inequality in paid employment affects the well-being of not only women themselves but also their family, given the evidence from a diverse set of countries that increasing a woman's share of income in the household significantly increases the share of the household budget allocated to children's education, health and nutrition-related expenditures (World bank, 2001). Despite the significant impacts, the gender implications of industrial restructuring have not received adequate attention from economists and policy-makers in China.

The purpose of this paper is to study the determinants of gender differences unemployment spells in urban China using a nation-wide household survey undertaken in 2003. We apply a duration regression model to investigate the main reasons as to why women's unemployment spells are longer than men's. We next evaluate the extent to which the gender disparity in unemployment durations is attributable to labor market structural and other institutional factors and to observed individual characteristics. A better understanding of the causes of gender disparities in unemployment is of critical importance for designing gender-sensitive public policies and seeking gender equitable solutions for urban unemployment.

The paper is organized as follows. Institutional backgrounds and literature review are presented in the next section. The theoretical framework is introduced in the section 3. Section 4 analyzes the empirical framework. Data and descriptive statistics are presented in section 5. Section 6 discusses the regression results of unemployment duration determination. Section 7 presents the findings from a decomposition analysis of unemployment duration by gender. The final section summarizes the main results and discusses their policy implications.

## **2. Institutional background and literature review**

Employment institution in urban China was characterized as "iron rice bowl" in the

pre-reform period when work units provided cradle to grave security to workers and their families. This full employment policy served the purpose of providing social security to urban workers in the period when state monopoly and economic planning guaranteed the profitability of nearly all enterprises. Coupled with higher overall earnings in the state sector, this has created disincentives for workers to leave the state sector and helped create a large pool of redundant workers in state-owned enterprises<sup>1</sup>. At the beginning of the 1990s, an evaluation of the urban labor market found that the urban labor market had not proceeded very far towards a properly functioning labor market. Underemployment was prevalent in state-owned enterprises (SOEs) and there was little labor mobility (Knight and Song 1995).

The year of 1993 saw the first tide of the SOEs' reform. In November of the year of 1993, the 14 sessions of three CCP plenary conferences confirmed that all the SOEs should turn to modern enterprise system. From then on, the SOEs were imposed with harder budget constraints while granting the firms more autonomy in many areas of business decision including wage setting and employment. It was stipulated that a firm may decide how many workers to hire according to its labor demand, but it has a responsibility for arranging employment for the redundant workers within the firm. The suggested measures include training for other positions within a firm, setting up sideline business, early retirement, etc.

However, such a gentle reform in SOEs didn't make a turning point for the worsening financial status. With higher cost of labor and the inability to shed redundant workers, state-owned enterprises are disadvantaged when faced with increased product market competition from more flexible non-government enterprises. By the year of 1996, the total losses, which came up to 79.068 billion Yuan, exceeded the total profits, which were 41.264 billion Yuan<sup>2</sup>. This means that the SOEs are fallen into the financial loss as a whole. And the redundant workers were thought the most significant impediment to the restructuring of state-owned enterprises and the biggest obstacle to further economic reform in many other areas of the economy.

Under such circumstance, the Chinese government took a radical reform to the SOEs in 1997, which is named as *zhudafangxiao*. With the permission and the encouragement from the government, the state-owned enterprises laid-off a large number of redundant workers in the

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<sup>1</sup> The hidden unemployment rate was about 20%—25%(Yuan, Zhigang and Fang, Ying,1998).

<sup>2</sup> NBS, China, China Statistics Yearbook,1998, p461.

following years. From the year of 1998 to 2002, about 27.145 million<sup>3</sup> workers were laid-off. In 2003, about 8 million registered as unemployed in urban China, the registered unemployment rate rose up to 4.3%<sup>4</sup>.

The Chinese name of the labor retrenchment is *xiagang* (off-duty). It has significant differences from unemployment or laying-off in the conventional sense. A *xiagang* worker maintains significant ties with the former employer: She is eligible for an allowance from the former employer and the employer is expected to continue to contribute on her behalf to pension and health insurance programs. Despite the ties with the former employer, most *xiagang* workers do not expect to be recalled by former employers. This unique characteristic of the Chinese labor retrenchment is a legacy of the pre-reform economic rigidity when social security was provided by work units.

The government stipulates that the maximum number of years that a worker may maintain the *xiagang* status is three. As a result, the re-employment centers were set up to deal with the labor retrenchment. In principle, the re-employment centers should be closed in the year of 2001; if the re-employment centers have been established in 2001, then all the re-employment centers must be closed in the end of the year of 2003.

And the data we used were surveyed at the end of the year of 2003, which was the exact year of combing *xiagang* with unemployed. This means that from then on, even the workers from SOEs would have no ties with their former employers any more.

Both men and women laid-offs worsen off during the radical reforms. However, researches show that women suffer even more. There are higher probabilities for women to be unemployed and lower probabilities to be reemployed (Appleton, et. al., 2002; Knight et al 2001; Li et al, 2001; Cai et al, 2004). In fact, the unemployment durations are longer for women (Du, 2004). However, there are no researches focusing on the reasons behind such a gender difference yet.

Of course, there exist gender disparities in reemployment all around the world. However, most of the researches focus on the gender disparities in the cost of displacement and find that women lose more from displacement than men (Maxwell,1986; Madden,1987; Crossley,1994; Mavromaras,1997; Grapard,1997; Pollert,2005). Baffoe-Bonnie (2005) find that longer durations of unemployment spells tend to increase males' wages and decrease females' wages. Despite the

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<sup>3</sup> Calculation according to China Labor and Social Security Yearbook, 2003.

<sup>4</sup> NBS, China, China Statistics Yearbook,2004.

wide attention that wage discrimination has received in the literature, few studies have considered the discrimination unemployed individuals face upon reemployment. Researches show that females have a great difficulty obtaining employment than do males so that they have to endure longer unemployment durations. Sheehan et al (1998) find that in UK, for those who have long term unemployment, the person-specific unemployment propensities have a significant effect on re-employment probabilities, and the effects vary significantly by gender and religion. However, this paper pays particular attention on the religion other than gender. Ham et al (1997) find that women endure longer unemployment spells than men in the process of transition in East and Central Europe. However, on one hand, their analysis focuses on the impact of unemployment insurance on duration other than gender; on the other hand, the unemployment spells are from the entitlement-based data which might result in unemployment duration bias. Appleton et al (2002) and Lishi et al (2002) find that women are more likely to be unemployed than men and have more difficulty finding re-employment in the private sector. However, they don't examine the exact reasons of such a great gender gap in searching reemployment with a quantitative framework. Cai et al (2004) study the gender disparities in re-employment probabilities in urban China. However, their paper focuses on the impacts of information and disincentive on reemployment, and their paper tries to deal with the endogeneity problem other than explaining why women have longer unemployment than men. In fact, most empirical research on unemployment duration has been focusing solely on men (Ehrenberg et al,1976; Lancaster et al,1979; Meyer, 1990; Narendranathan et al, 1985; Nickell, 1979; Ham et al, 1998). We argue that the research on gender disparities in unemployment duration is necessary and important for the evaluation of both family policies and reemployment policies. Longer involuntary unemployment durations result in not only the earning losses and human capital decay but also the mental sufferings. Thus, longer unemployment duration is not only one of the reasons of gender discrimination in post-displacement wages and workplace, but also the consequences of gender discriminations in the process of searching reemployment.

This paper tries to identify the reasons of gender disparities in unemployment durations using the duration model framework.

### **3. Theoretical Framework**

According to job search theory (Stigler,1962; McCall,1988; Narendranathan et al, 1985),

the probability of leaving unemployment is determined by two other probabilities: the probability of receiving job offers and the probability of accepting those received offers. The possibility of receiving job offers is mainly determined by the individuals' human capital levels, the individuals' social networks, the macro-level labor demand and the employers' preference. The possibility of accepting the received offers is mainly determined by the labor supply side. Those workers who accept the job offers earn the offered wages, but they have to give up the unemployment benefits, the leisure and the potential higher wages through search. If the marginal revenue of accepting the offer is more than the marginal cost, the workers will accept it; if not, the workers will reject it. Suppose an unemployed worker have in mind a reservation wage, the minimum wage he/she would prepare to accept. When the distribution of the wage offers are given, those unemployed workers who set high reservation wages, and stick to them, are likely to have to wait longer before the sufficiently high wage offers arrived (Stigler, 1962). So any factors which affect the reservation wages will increase or decrease the possibility of accepting the offers. Human capital levels, unemployment benefits and other opportunity costs, family responsibility and family income are the main determinants of accepting job offers.

The probabilities of leaving unemployment are usually different between males and females due to the different preference of the employers', different roles in family responsibilities and the social norms.

### **3.1 The determinants of receiving job offers**

The individuals' human capital, social networks, macro-level economics development and employers' preference will influence the probability of receiving job offers.

#### **Human capital**

Human capital characteristics serve as a signal of a desirable, or undesirable, worker traits to a new firm (Maxwell,1989), so those who are considered with higher human capital can get more job offers from the employers, other things remaining constant. At the same time, those who are with higher human capitals would have higher efficiency in job search.

#### **Social networks**

Social networks also affect the unemployment duration. According to the survey data, more than 40% laid-offs search jobs through the relatives and friends. Maybe the laid-offs can get more information from the relatives and friends so that they can improve the search efficiency.

Researches find that personal connections facilitate job search (Krauth,2004). Although the numbers of women entering the workplace have risen steadily in the last half century and strides have been made in attaining economic parity with men, statistics reveal that women continue to lag behind men in career advancement and in levels of compensation and achieved status. It is argued in the literature that women are hindered in their efforts to achieve career advancement and its associated benefits due to their inability to access social capital, a valuable organizational commodity and source of the knowledge, resources, and networks that are essential for career development and maturation (Timberlake,2005). So women might receive less job offers due to shortage of social networks.

### **Macro-level economic indicators**

Some macro-level economic indicators, such as local unemployment rates, share of tertiary in the industry structure and local economic growth rate might influence the labor demand. Higher local unemployment rate reflects tighter labor market, so high unemployment rate might reduce the arriving speed of job offers. Haurin et al (2003) found relatively high local unemployment rates reduce the reservation wages of area residents or increase the duration of search. The production technique shows that the tertiary industry is labor-intensive so that higher ratio of tertiary industry might offer more employment opportunities. In China, the employment share in tertiary industry has increased from 21.2% in 1993 to 26.7% in 1998, and in the year of 2003, this ratio rose up to 29.3%<sup>5</sup>. These changes are good news for laid-offs, especially the females, because more women work in the tertiary industry traditionally. Higher economic growth rates might absorb more labors. Saget (2000) find that employment positively responds to GDP growth in several Central and Eastern Europe countries. And the gender inequality in labor market tends to rise for those countries where GDP performs badly (Saget, 2000). In China, the employment also responses to GDP growth positively, however, the magnitude has declined since the beginning of 1990s (Hu, et al, 2002, p126).

### **Employers' preference**

Employers' preferences on gender affect the job offers' arriving rates for men and women. For example, if the employers consider men with higher efficiency, then they will offer men job offers other women, vise, versa.

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<sup>5</sup> China Statistical Yearbook(2004).

### **3.2 The determinants of accepting job offers**

Unemployment benefits and other opportunity costs of accepting job offers, family responsibilities, family income and social norms will influence the probability of accepting job offers.

#### **Opportunity cost of accepting job offers**

The opportunity cost of accepting an offer affects the unemployment duration positively. The higher the opportunity cost is, the longer the unemployment duration becomes. Those who accept job offers have to give up the unemployment benefits, thus, the unemployment benefits decrease the marginal benefit of accepting and increase the opportunity costs of being re-employed. The unemployment duration will be longer for the recipients than the non-recipients and men and women response to UB differently (Ham et al, 1998,1999). What's more, the unemployment duration will prolong with the increasing of the unemployed benefits (Nickell,1979). Besides the UB, the reemployed workers have to give up enjoying leisure time and the value of staying at home with their family.

#### **Family responsibilities**

Traditionally, women are expected to be responsible for house works and pay much time on taking care of the old or the children. So women's unemployment is related to an exacerbated unequal division of domestic labor (Strom,2002). And women are more likely to reject jobs due to conflict with family responsibilities and lack of extrinsic rewards (Kulik, 2000).

#### **Family income**

When the other adult earns more money, or when the family can gain other income through the asset, the unemployed workers are likely to have enough income to buy leisure so that these people will decrease the search intensity.

#### **Social norms**

Social norms influence the motivation to work. Kulik (2000) find that men spent more time searching and perceived the state of unemployment as more stigmatic. In China, men are looked as the bread gainer of the family and they shouldn't depend on their wives in China traditionally. Thus, men have stronger motivation to search jobs.

Of course, the unobserved ability also contributes to the different re-employment probability. On one hand, the able workers have higher search efficiency so that they can receive more job

offers. On the other hand, the able workers usually have higher reservation wage so that they are likely to reject the received job offers.

#### **4. Empirical Framework**

We use a duration model commonly applied in the labor literature to analyze the determinants of unemployment spells (for references, see Nickell, 1979; Lancaster, 1979, Narendranathan et. al., 1985; Meyer, 1990). Let us denote  $h(t)dt$  the hazard function in period  $t$  of the unemployment spell, which is the probability that individual  $i$  will leave unemployment during the period  $(t, t+dt)$  conditional on the person has been unemployed for  $t$  periods. The conditional probability of leaving unemployment is the product of the probability that individual  $i$  receives a job offer during  $(t, t+dt)$  and the probability that such an offer is accepted.

The probability of receiving a job offer during  $(t, t + dt)$  is determined by four types of factors. We use such variables as regional rate of growth, industrial structure and unemployment rates to proxy the labor demand. The human capital levels are indicative of the expected productivity of the individual to employers. Such variables are proxied by experience, education attainment and health status. The employers' preference is presented by the coefficients. The fourth type of factors is social networks. Such variables as the party membership, job search channels and the presence of another unemployed adult in the household are used to proxy social networks.

The probability that the individual accepts a job offer is determined by a comparison of the wage offer and the reservation wage. While the wage offer shares the same determinants of the probability of receiving a job offer, the reservation wage is affected by such factors as human capital, job search motivations, opportunity cost of accepting an offer, family responsibilities and other income sources in a family. In this paper, unemployment benefits are used as the proxy of opportunity cost. Demographic characteristics of the household associated with children are used to proxy the job search motivation and family responsibilities. Incomes from other sources, including the earnings of other workers' in a family and asset bonus are included in the model to proxy the purchasing power of leisure.

Of course, the unobserved abilities might change the probabilities of receiving and accepting a job offer. In order to control the unobserved ability, we use pre-displacement wages and the types of ownerships pre-displacement as the controlled variables. The pre-displacement wages and

the types of ownerships pre-displacement can be used not only as the controlled variables, but also can reflect the arriving rate of the job offers and the probability of accepting job offers.

The employers' preference to gender and the different effects on men and women by social norms are expressed by the sign and magnitude of the coefficients.

Thus, the hazard function of leaving unemployment is written as  $h(t) = h(X(t), t)$ , where  $X$  is a vector of explanatory variables, which include productive attributes of individuals, social networks, family characteristics, macro-level labor demand conditions, unemployment benefits and other controlled variables.

Following Narendranathan et al (1985), we assume the Weibull distribution and write the regression model of unemployment duration as:

$$h(X(t), t) = \exp[X(t)' \beta] \alpha t^{\alpha-1}, \alpha > 0 \quad (2.1)$$

Where  $\beta$  is a vector of regression parameters and  $\alpha$  is the indicator of how the hazard function is changing with respect to duration, that is, in the cases where  $\alpha > 1$ ,  $\alpha < 1$ , and  $\alpha = 1$ , the conditional probability of re-employment is increasing, decreasing in or independent of unemployment duration.

In this model, the expected mean duration of unemployment for time invariant explanatory variables  $X$  is given by:

$$ED = \Gamma(1 + \frac{1}{\alpha}) \exp(-\frac{X' \beta}{\alpha}) \quad (2.2)$$

Where  $\Gamma(\cdot)$  is the standard Gamma distribution function. The elasticity of expected duration with respect to a variable which enters the hazard function in logs is the negative of the corresponding element of  $\beta$  divided by  $\alpha$ .

Using equations (2.1) and (2.2), we will analyze the patterns of leaving unemployment for men and women in urban China and explore the determinants of gender differences in unemployment spells in the remaining paper.

One shortcoming of the hazard function (2.1) is the absence of the possible unobserved heterogeneity. In order to deal with the problem, we employ the method used by Narendranathan et al, (1985), then the equation that we will estimate become:

$$h_v[X_i, t] = h[X_i, t | v] = \exp(X_i' \beta) \alpha t^{\alpha-1} v \quad (2.3)$$

$v$  is a random variable with the density function of  $\varphi(v) = \frac{\gamma^\gamma}{\Gamma(\gamma)} v^{\gamma-1} e^{-v^\gamma}$ , where

$E v = 1, D v = \sigma^2 = \frac{1}{\gamma}$ , we will use  $\chi^2(01)$  to test if  $\sigma = 0$  significantly; other variables

and coefficients have the same meanings as above.

The expected duration with unobserved heterogeneity share the same form of formula (2.2) with the different estimated parameters.

## 5. Data and Descriptive Statistics

The data used by this paper are derived from the Unemployment and Reemployment Survey conducted by China's National Bureau of Statistics in December 2003. The survey covers 17 major municipalities and provinces selected from six geographic regions, namely, Beijing, Tianjin, Hebei, Shanxi, Liaoning, Jilin, Heilongjiang, Jiangsu, Anhui, Henan, Guangdong, Hubei, Chongqing, Sichuan, Yunnan, Guizhou and Gansu. Except for Beijing, Tianjin and Chongqing, three cities in each province are covered by the survey, including the capital of the province, a median- and a small-size city. Within each city, urban-registered households are selected using stratified random sampling methods.<sup>6</sup> A total of 11,422 households across 45 cities are included in the survey. The survey covers the urban residents aged between 16 and 60 for men and 16 and 50 for women who had experienced involuntary unemployment in the past 3 years. The survey took women up to the age of 50 despite the official retirement age being 55, maybe because women are likely to be retired before the age of 55 during the economic restructuring. Of course, the fact that 10 years difference between males and females might underestimate the difficulties faced by women laid-offs. The sample consists of 2,573 observations, of which 1008 were re-employed and 1,565 remained unemployed at the time when the survey was done. For those who have experienced more than one time of unemployment, the beginning and ending time of the latest unemployment are recorded. As a result, it is impossible for us to get the multiple unemployment spells.

The data we used include the retrospective unemployment spells<sup>7</sup> so that we are able to avoid the left-censoring problem. However, the interviewees are required to recall the status in labor market during the latest three years, 600 samples are unemployed in the period of 1998-2000. The cutting of the extended time will result in very severe left-censored problem. On the other hand, the data exclude those who were unemployed and also reemployed beyond the "past 3 years", as a result, we can't avoid the sample selection problem which might lead to longer duration than the facts.

<sup>6</sup> In each city, the surveyed households are the same as those in the annual urban household survey by the Urban Household Survey Team of the National Bureau of Statistics.

<sup>7</sup> There might exist the recall error for the retrospective data, detail discussion about the retrospective data, see Kiefer (1988).

Excluding the samples with missing duration values and those outliers, the earliest unemployment year is 1993. We call this data set “sample from 1993”. If we estimate the equations using the samples unemployed since the year of 1993, the reemployment probability will be underestimated. As a way to overcome the extremely long unemployment spells, we drop some samples with too long unemployment spells. Just because the radical SOEs’ reform started in the year of 1998, we drop those individuals who are unemployed before 1998, through which we get a sub-sample data set, that we name “sample from 1998”. The sample sizes are 2291 for “sample from 1993” and 2102 for “sample from 1998”.

We derive the dependent variable of unemployment spells<sup>8</sup> and the explanatory variables for personal characteristics, such as gender, age, marital status, education, health, party membership, income and demographic characteristics of households, and unemployment benefits (UB) and job search channels directly from the survey. Variables for economic growth and share of tertiary sector in GDP by city are obtained from the *China Statistics Yearbook, 2003* and the *China City Statistics Yearbook, 2003*. Unemployment rates by province are calculated using information obtained from the Urban Household Survey.<sup>9</sup>

Table2.2.1 presents descriptive statistics of unemployment and re-employment of the sample (from 1998). From that table, we note that women take a disproportionate large share of the unemployed and a small share of the re-employed and that unemployment durations are long and women’s are even longer. Specifically, of the 2,102 unemployed, only 881 (41.8%) are re-employed and the average unemployment durations are about 18 months for the entire sample, 13 months for the re-employed and 21 months for those still unemployed. With regard to gender differences, we find that female workers make up about 59 percent of the unemployed, 18 percentage points higher than the share for men, whereas their share in reemployment is only 56 percent. Moreover, the mean length of unemployment spells for women are longer than men by more than 2 months. These results confirm that unemployed women have endured more difficulty in re-entering the labor market.

[table2.1]

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<sup>8</sup> The observed unemployment spells for currently unemployed are not the real ones because of the right censoring.

<sup>9</sup> We define those who worked less than 4 hours in November 2003 as unemployed.

Table 2.1 presents summary statistics of observed personal and household characteristics of men and women in the sample. The statistics on education, experience and health show no striking disparity in human capital endowment between men and women. Women have, on average, slightly more years of schooling, better health, and fewer years of job experience than men. The ownership distribution of The job search channels are also fairly similar between men and women. However, marked gender gaps are found in pre-displacement earnings, unemployment benefits, and income by other household members. The ratio of women to men is 0.77 for pre-displacement wages, 0.69 for property income, and 0.94 for unemployment benefits, whereas earning of other household members is 55 percent higher for women than for men. Moreover, women are less likely to be party members, indicating that women may have less social capital than do men. Compared with men, the distribution of women over age of children is more skewed towards the categories of no children or having younger children. The differences in income, social capital, and household demographics are likely to affect incentives and constraints of men and women to re-enter the labor market. Lower pre-layoff wages, property income and public income supports for unemployment for women than men tend to reduce women's reservation wages relative to men's and consequently women's probability of leaving unemployment, whereas higher income from other household members (mainly husbands) for women has the opposite effect. The lack of access to social network may represent an important obstacle for women in job search. This means that relatives and friends might not be as helpful for women as for men, because women bear large part of family responsibilities. The fact that a larger proportion of unemployed female workers have young children may raise their opportunity costs of working relative to men or put more pressure on women to work in order to support their family.

[table 2.2]

Besides the difference in individual and household characteristics, the sector distributions are different between male and female workers before unemployment, see tableA1. Table A1 predicts that nearly 80% displaced workers lost jobs because their workplace were closed or nearly closed. And before unemployed, more women worked in the enterprises that were in loss and service sectors. This means that the workplaces are inferior for women to men before unemployment.

In order to see how the unemployed workers in the sample changed with time, we calculate the inflow rates and outflow rates<sup>10</sup> from the survey data, see table2.3.

[table2.3]

Table2.3 shows that although inflow rates and outflow rates keep increasing for both men and women, women's inflow rates are higher and outflow rates are lower relatively. This means that women laid-offs face tougher environment in labor market.

In the following sections we will examine how gender differences in those observed characteristics influence the re-employment outcomes of men and women.

## 6. Results

To depict the difference of re-employment probabilities between men and women, we first present the Kaplan-Meier Survival curves by gender using nonparametric method (see figure 1).

[Figure 1]

Figure 1 shows that the non-employment probability of females' is always higher than that of males. In order to identify the determinants of the difference, we estimate the hazard function of unemployment spells in (1) by Maximum Likelihood Estimation techniques using STATA computer software package. The regression is first applied for a pooled sample of men and women and then for men and women separately. The estimates are presented in Table 8. Based on the likelihood ratio tests reported at the bottom of Table 8, all three regressions are statistically significant at the 1 percent level<sup>11</sup>.

[table2.4]

We now take a look at the regression estimates<sup>12</sup>. The estimates of the pooled regression show a significant gender gap in unemployment duration, as the probability of leaving unemployment for women is only 56.3 percent of the probability for men using the data from

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<sup>10</sup> Average annual rates of the number flowing into unemployment divided by the number employed and multiplied by 100; Average annual rates of the number flowing out of unemployment divided by the number unemployed, multiplied by 100.

<sup>11</sup> In order to test the robustness of the results, the regressions used semi-parameter approach are presented in appendix, see table A1.

<sup>12</sup> For the convenience of interpretation, we report the hazard-ratios other than the coefficients. Hazard-ratios are the relative coefficients to the reference group for dummy variables, and for continuous variables, the hazard-ratio for variable X is the coefficient divided by the coefficient of (X-1). As a result, the hazard-ratios are more than 1 when the coefficients are positive, otherwise, the hazard-ratios are less than 1 when the coefficients are negative.

1993, the ratio rises up to 59.7 using the data from 1998. This means that more women have endured longer unemployment durations.

As expected, experience, education and having good health have significant positive effects on the probability of leaving unemployment. In addition, being community party membership facilitates the reemployment significantly. The results also show that those unemployed workers whose spouse or other household members are also unemployed are significantly less likely to find re-employment. Moreover, compared to those who rely on governments for job search, the hazard ratio of employment for those who rely on relatives and friends or themselves is significantly higher. This result indicates that private social networks are more effective than public job replacement services in helping laid off workers re-enter the labor market. Also consistent with economic intuition, pre-displacement wages, income from other members and unemployment benefits are found to decrease the hazard ratio of re-employment and the effects are significant at the 1% level. Interestingly, in contrast to our result, using data gathered in the spring of 2000 Appleton et. al. (2002) find that job replacement services provided by governments are more effective than private job search mechanisms. Given that our analysis uses data obtained in December 2003, the contrast between our results and Appleton's is indicative of the deepening of labor market reforms in labor market reforms in urban China.

Surprisingly, we find that workers with children aged between 0 and 6 are more likely to find re-employment than the workers with no children. This result may be attributable to the fact that unemployment rates are higher for younger age group, given that workers with no children are most likely to be young people.

The factors associated with local labor demand do not appear to have any significant impact on re-employment. The laid-offs from SOEs or collective enterprises confront more difficulties to be reemployed because of their desired attachment to their former employers or because of the higher transition costs from public to private sectors.

We now turn to examine the estimates by gender. These estimates reveal that there are noticeable gender differences in marginal effects of observed characteristics on unemployment durations. We first take a look at the impact of human capital. The benefit from experience for men and women is mixed, excluding those unemployed between the years of 1992 and 1998, men benefit more than women in that the estimate for experience is higher than that for women.

Using the data from 1993, the result is inverted. In contrast to experience, education appears to be more important for women than men; one additional year of schooling increases the hazard ratio by 17.4 percent for women and only 4.8 percent for men, and the estimate is significant only for women. Including those who were unemployed before the year of 1998, the difference in returns to education is even larger. Health status affects positively the prospect of re-employment for men more than for women, perhaps because jobs for men are more physically demanding.

Striking gender differences are also found in marginal effects of social capital endowments. Holding a party membership makes a significant difference in unemployment duration for women but has no effect for men. Quantitatively, a woman's probability of leaving unemployment is from 60.9 to 70.9 percent higher for a party member than a non-party member. Moreover, the estimates of dummy variables for job search channels show that helps from relatives and friends or self efforts have significant positive effect for both men and women but the estimates are numerically larger for men than women. These results suggest that, on one hand, women can benefit more from the social network; on the other hand, lack of social contacts represents a major handicap for unemployed females in re-entering the labor market.

With respect to reemployment incentives, the estimates show that pre-displacement earnings have significant negative effect on re-employment for both men and women but the effect is larger for women than for men. Income from other family members has mixed effect for both men and women but the estimate is insignificant for both men and women. However, property income has a negative effect on re-employment for men but positive effect for women. This may be a result that women do not have the same degree of control over property income as do men. Despite gender differences in private income, the effects of public income support for unemployment are fairly similar for men and women, unemployment benefits significantly decreases the hazard ratio of re-employment for both sexes and the difference in the magnitude of the effect between men and women is negligible.

Cai et al (2004) use a dummy variable of access to UB other than the quantity because they worry about that the UB might be endogenous. We also have the regressions using the access to UB (with access to UB=1; without access to UB=0) instead. The hazard ratios of UB are 0.609 for pooled regression, 0.541 for male and 0.648 for female when the "sample from 1993" is used. If the "sample from 1998" is used, the hazard ratio are 0.592 for pooled regression, 0.585 for male

and 0.637 for female if the dummy variable of access to UB is used instead of the quantity variable of “lnubeni”. The results of other variables are similar to those presented in table2.4 for both the sample “from 1993” and “from 1998”, and the results are available through request on the authors. These results show that there might be no endogeneity for the variable of UB. The pre-displacement earnings are usually looked as a proxy of ability of the individuals. So we calculate the correlation coefficient between UB and the pre-displacement earnings, which is 0. This means that UB is uncorrelated with unobserved ability. Access to UB and UB are correlated with the pre-displacement ownerships with -0.3 and -0.27 respectively, which means that those who are laid off from SOEs are likely to get UB and get higher UB. So we use the pre-displacement ownerships as the controlled variables so that we can get the pure effect of UB on re-employment.

To discern the sensitivity of unemployment spells to these re-employment incentives for men and women, we calculate the elasticities of unemployment duration and report the results in Table2.5. The estimates indicate that a one-percent increase in pre-displacement wages tends to raise unemployment duration by from 0.197 to 0.213 percent for men and from 0.314 to 0.456 percent for women. However, the male elasticity with respect to unemployment benefits of 0.114 to 0.123 is only slightly higher than the female elasticity of 0.087 to 0.093. Ham, et al(1998,1999) estimate that the point elasticity of unemployment spells is 0.21 for women and 0.34 for men in the Czech Republic. Compared with their estimates, the negative incentive effects of public income support for unemployed workers are weaker in urban China than in the Czech Republic. The sensitivity of unemployment duration with respect to property income and income earned by other household members are also rather small.

[table2.5]

Turning to other observable characteristics, marital status appears to have a positive effect for men and a negative effect for women, but the estimates are statistically significant only for women. Moreover, from the estimates of dummy variables on children, we conclude that the responsibility of childcare does not represent a significant impediment for men and women to leave unemployment. Local unemployment rates have negative impacts for both men and women, but not significant for both male and female laid offs. Contrary to unemployment rates, the local economic growth rates have insignificantly positive impacts for both men and women. However,

the share of tertiary sector has a negative effect men's reemployment but a positive effect on women's reemployment but the estimate is not statistically significant for both men and women. This finding is consistent with the pattern of gender segmentation in which the service sector is female intensive. The estimates of variables on local labor demand imply that the nature of unemployment in urban China is structural and fictional rather than inadequate general demand for labor.

The pre-displacement ownership distributions impact the probability of leaving unemployment significantly. As a whole, those laid-offs from non-public sectors have higher hazard-ratios than those from public sectors. Those who were laid-off from private and self-employed have the significantly highest reemployment rates. We can explain these results in two different ways. On one hand, the laid-offs from public-sectors might have higher reservation wages following the higher wages and better social welfare before being unemployment. On the other hand, those who were from public-sectors might face higher obstacles to find jobs in the expanding non-public sectors. And even worse for those women who were unemployed from the collective enterprises, they have not only born disproportionate job losses, but also suffered the lowest reemployment probability. These facts also contribute to the disadvantage positions relative to men in labor market.

Last, but not least, the estimates of  $\alpha$  indicate that the probability of leaving unemployment is decreasing in unemployment duration for men ( $\alpha = 0.950$  or  $\alpha = 0.915$ ) but more or less independent of the length of unemployment spells for women ( $\alpha = 1.046$  or  $\alpha = 0.997$ ). These results are different from the results of USA, the odds ratios increased with the years of unemployment (Caputo et al, 2001).

### **7. Decomposition of Gender Differences in Unemployment Duration**

From the regressions of unemployment spells, we estimate that the expected length of unemployment spells for women is longer than that for men by about four months. Theoretically, this observed gender gap in unemployment duration can be attributed to: (1) differences in observable characteristics and /or (2) differences in regression coefficients. To disentangle the sources of the observed gender differences in predicted unemployment spells, the male-female difference in unemployment duration is decomposed by the Oaxaca method:

$$\overline{ED}_F - \overline{ED}_M = [ED(\overline{X}_F, \hat{\beta}_M) - ED(\overline{X}_M, \hat{\beta}_M)] + [ED(\overline{X}_F, \hat{\beta}_F) - ED(\overline{X}_F, \hat{\beta}_M)]^{13} \quad (2.4)$$

Where  $\overline{ED}$  is the expected mean length of unemployment duration of males (M) and females (F) at the mean value of X for each sub-sample. The first term on the right-hand side of (2.4) captures the gender differences in unemployment duration due to the differences in observed characteristics between men and women. In other words, it represents the difference in unemployment duration between men and women if they respond to changes in observable characteristics by the same manners as do men. The second term measures the gender differences attributable to differences in the estimated coefficients. The implicit assumption underlying the second term is that if the mean characteristics are identical across gender groups, then gender differences in unemployment spells are driven by labor market structural and institutional factors. This term also captures the effects of unobservable factors that are not equally distributed among men and women (such as, for example, individual tastes and preference or quality of productive attributes). It essentially represents the difference between female's predicted length of unemployment spells when facing male's labor market structure, and female's actual predicted unemployed duration at the mean characteristics of the female sample. The Oaxaca decomposition of differences in ED is presented in table2.6.

[table2.6]

The first finding in table2.6 is that the difference in unemployment duration between women and men is from 6.06 to 10.48 months. Moreover, all of this difference is due to differences in coefficients and none of it arises because of differences in explanatory variables. Specifically, if men and women faced the same market structure as male's, women's predicted mean unemployment spell would be 2.39-5.30 months shorter than men's, given the gender differences in observed characteristics. Ham et al. (1999) draw a similar conclusion that differences between men and women's labor supply behavior and institutional responses to gender are the major determinants of observed gender differences in unemployment duration in the Czech and Slovak Republics.

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<sup>13</sup> The gender disparities in ED can also be presented by

$$\overline{ED}_F - \overline{ED}_M = [ED(\overline{X}_F, \hat{\beta}_F) - ED(\overline{X}_M, \hat{\beta}_F)] + [ED(\overline{X}_M, \hat{\beta}_F) - ED(\overline{X}_M, \hat{\beta}_M)].$$

The results presented in table10 are the simple average. For more details, see Ham et al, 1998.

## 8. Conclusions

In this paper, we study the gender patterns of unemployment durations in urban China using data derived from a recent, national representative household survey. We estimate the determinants of unemployment spells for men and women and analyze the sources of the gender differences in unemployment durations. The results confirm that laid off female workers have a lower probability of leaving unemployment than their male counterparts and their unemployment spells are longer. Our analysis has shown that most of the gender gap in unemployment durations is explained by male-female differences in the marginal propensity of re-employment (as measured by differences in their parameters) instead of male-female differences in measured demand and individual characteristics. Specifically, we find that the pre-displacement wages have stronger negative effect on reemployment for women than for men. We attribute these results to the existence of gender segmentation in the workplace prior to the lay off and the rising gender wage gap as workers leave the state sector to seek employment in the private sector. The pre-displacement ownership distribution also contributes to the gender gap in unemployment durations because they have to face higher transition cost. Moreover, our analysis indicates that lack of social network represents a major handicap for women to leave unemployment relative to men. At the same time, married women are less likely to leave unemployment, maybe because they have more family responsibilities so that they don't have as strong motivation as men's to search jobs.

In addition to the findings on gender disparities, our analysis has also generated several important results regarding the operation of China's urban labor market. Our estimates indicate that the problem of unemployment in post-restructuring urban China is structural and fictional rather than lacking aggregate demand for labor. The analysis also shows that public income supports for unemployment are having a rather moderate effect on the durations of unemployment of both men and women in urban China.

The results of our analysis have important policy implications. The main message is that to reduce gender inequality in employment, policy measures must be taken to address external constraints and structural features of China's urban labor market. Chief among these are public interventions for reducing gender segmentation in the workplace, narrowing gender wage gap in the emerging private sector, and making active labor policies, such as skill-training and job

replacement services, more sensitive to the needs of unemployed female workers. Beyond the concern about gender inequality, policies designed to provide a social safety net for unemployed urban workers are also warranted in order to ease the pain borne by these workers in the face of labor market turbulence.

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Figure 2.1 Kaplan-Meier Survival estimates by gender (male is represented by gender=0 and female by gender=1)

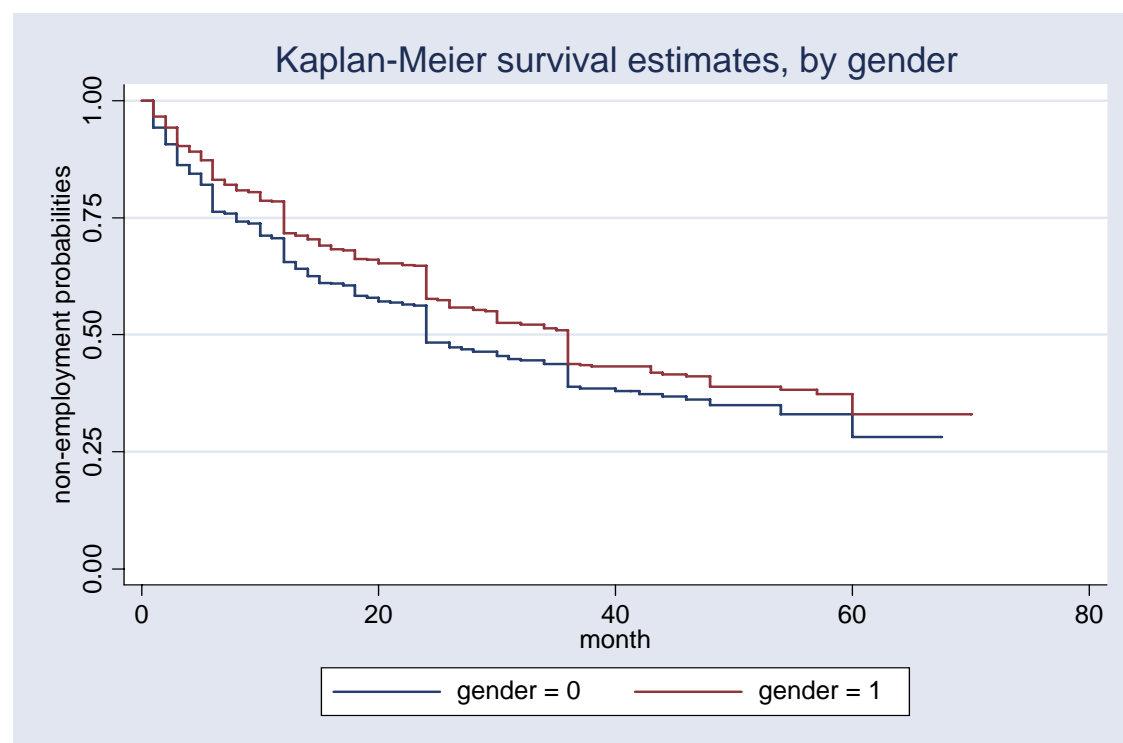


Table 2.1 Unemployment Durations in Urban China by Gender, 2003

	Unemployed in past 3 years (1)		Re-employed (2)		Remain unemployed (3)	
No. Obs.	2,102		881		1,221	
%	100		41.91		58.09	
Unempl. duration (month)	17.67 (15.82)		13.29 (12.42)		20.82 (17.21)	
By gender	Male	Female	Male	Female	Male	Female
No. Obs.	865	1,236	386	495	479	741
%	41.17	58.83	43.81	56.19	39.26	60.74
Unempl. Duration (month)	16.22 (15.42)	18.68 (16.03)	11.88 (11.89)	14.39 (12.72)	19.72 (16.98)	21.55 (17.33)

Note: Standard deviations are in parentheses.

Table 2.2 Summary Statistics of Personal Characteristics of the Sample, by Gender

	Male		Female		F/M
Continuous variables	Mean	Std. Dev.	Mean	Std. Dev.	
Years of schooling <sup>1</sup>	11.16	2.32	11.26	2.10	1.01
Spouses' years of schooling <sup>2</sup>	10.54	2.83	11.36	2.84	1.08
Experience <sup>3</sup>	21.65	11.27	19.72	8.34	0.91
Pre-displacement Earnings (RMB/month)	702.33	496.44	541.50	260.92	0.77

Income of other members (RMB/month)	632.05	677.62	981.84	775.42	1.55
Property income (RMB/month)	360.77	642.14	250.57	696.04	0.69
UB (RMB/month)	82.22	82.42	77.62	78.07	0.94
Percentage of access to UB	45.32	0.50	42.64	0.49	0.94
<b>Discrete variables (%)</b>					
Party <sup>4</sup>	14.2	0.350	8.9	0.285	0.83
Marriage	77.6	0.418	88.4	0.320	1.14
Health	8.77	0.328	88.9	0.314	1.01
<b>Household demographic</b>					
No children	10.9		12.9		1.18
Child aged 0—6 <sup>5</sup>	3.4		7.8		2.29
Child aged 7—18	28.4		39.9		1.40
Child aged 19—22	18.3		18.4		1.00
Child aged over 22	39.1		21.1		0.54
<b>Ownership structure<sup>6</sup></b>					
SOE	46.59		39.11		0.83
Collective	12.60		22.11		1.75
Private and self-employed	14.45		15.30		1.06
Joint venture	7.98		6.07		0.76
Others	18.38		17.41		0.95
<b>Job search channels</b>					
Government	17.0		17.5		1.01
Labor Market	2.7		2.8		1.04
Relatives and friends	43.8		43.7		0.99
Themselves	31.1		31.8		1.022
Other	5.4		4.5		0.833

Notes: 1. Years of Schooling are calculated from levels of education attainment with 6 years for primary school, 9 for junior school, 12 for high school, 15 for college graduates (*dazhuan*), 16 for university graduates and 19 for postgraduates. 2. As far as 16% individuals who have no spouses are concerned, the household heads' education levels are used. 3. Years of pre-displacement experience are derived by subtracting the sum of 6, years of schooling and years of unemployment. 4. Party is a dummy variable for communist party membership; Marriage is a binary indicator of marriage status; and Health is a dummy which is equal to one if the person is reported to have good health. 5. We combine the category of "child age0-3" with "child age 4-6" because there are only 51 samples in the former category. 6. The ownership structure listed in table 2 is what the things like pre-displacement.

**Table2.3 Average inflow rates and outflow rates by year and by gender**

	Male		Female	
	Inflow rates	Outflow rates	Inflow rates	Outflow rates
1998	4.86	4.76	5.42	4.48
1999	7.52	4.90	9.13	3.51
2000	14.99	10.85	19.33	8.33
2001	26.81	21.35	28.27	17.00
2002	37.87	21.26	37.55	18.52
2003	53.23	25.97	53.21	22.16

**Table2.4. Regression Estimates of Unemployment Duration (unobserved heterogeneity is considered)**

Variables	From 1993			From 1998		
	pooled Haz. Ratio (t-statistics)	Male Haz. Ratio (t-statistics)	Female Haz. Ratio (t-statistics)	pooled Haz. Ratio (t-statistics)	Male Haz. Ratio (t-statistics)	Female Haz. Ratio (t-statistics)
Gender#	0.563 (-5.63)***	--	--	0.597 (-5.27)***	--	--
Experience	1.150 (5.58)***	1.093 (2.71)***	1.128 (3.28)***	1.131 (5.02)***	1.114 (4.10)***	1.080 (2.44)**
Experience square	0.998 (-4.14)***	0.998 (-2.37)**	0.999 (-1.55)	0.998 (-4.18)***	0.998 (-3.72)***	0.999 (-1.29)
Education	1.173 (6.47)***	1.064 (1.99)**	1.265 (6.46)***	1.130 (5.20)***	1.048 (1.69)*	1.174 (6.02)***
Health#	2.304 (5.34)***	2.317 (3.82)***	2.186 (3.89)***	1.937 (4.20)***	2.085 (3.66)***	1.628 (2.66)***
Party#	1.608 (3.42)***	1.302 (1.40)	1.706 (2.99)***	1.521 (3.21)***	1.239 (1.27)	1.609 (3.35)***
Marriage#	0.693 (-2.06)**	1.209 (0.77)	0.492 (-2.98)***	0.812 (-1.21)	0.996 (-0.02)	0.707 (-1.77)*
Child aged 0-6#	1.820 (2.63)***	1.370 (0.91)	2.176 (2.77)***	0.884 (-0.86)	0.779 (-1.27)	0.915 (-0.50)
Child aged 7-18	1.246 (1.46)	1.435 (1.69)*	1.213 (1.01)	1.233 (1.11)	0.928 (-0.24)	1.270 (1.19)
Child aged 19-22	1.015 (0.09)	1.003 (0.01)	1.005 (0.02)	0.762 (-2.11)**	0.677 (-2.30)**	0.832 (-1.20)
Child aged over 22	0.847 (-1.04)	1.077 (0.35)	0.776 (-1.18)	0.687 (-2.94)***	0.743 (-1.92)*	0.689 (-2.25)**
Log(Income of other members)	1.004 (0.21)	1.003 (0.14)	1.006 (0.25)	0.989 (-0.62)	0.989 (-0.59)	0.994 (-0.27)
Log(Property income)	0.998 (-0.13)	0.978 (-1.23)	1.013 (0.73)	0.986 (-0.93)	0.960 (-2.05)**	1.012 (0.66)
Log(Pre-displacement earnings)	0.726 (-5.76)***	0.817 (-3.34)***	0.621 (-5.44)***	0.760 (-5.39)***	0.835 (-3.95)***	0.731 (-6.00)***
Log(UB)	0.893	0.881	0.899	0.890	0.894	0.900

	(-5.33)***	(-4.17)***	(-3.87)***	(-5.65)***	(-4.41)***	(-4.32)***
<b>Pre-displacement</b>						
<b>ownership</b>						
Collective#	0.872	1.175	0.767	1.039	1.240	0.975
	(-1.18)	(0.87)	(-1.86)*	(0.33)	(1.28)	(-0.20)
Private and	1.864	1.719	1.813	1.666	1.590	1.500
self-employed	(4.34)***	(2.71)***	(3.22)***	(3.75)***	(2.68)***	(2.40)**
Joint venture	1.548	1.880	1.314	1.421	1.465	1.387
	(2.37)**	(2.56)**	(1.09)	(2.07)**	(1.94)*	(1.62)
Other ownership	1.429	1.241	1.405	1.392	1.216	1.389
	(2.75)***	(1.19)	(2.09)**	(2.68)***	(1.23)	(2.38)**
<b>Job search channel</b>						
Labor Market#	1.042	1.256	0.976	1.305	1.707	1.141
	(0.14)	(0.53)	(-0.06)	(0.91)	(1.52)	(0.40)
Relatives& friends	1.891	2.741	1.463	1.940	2.403	1.462
	(4.51)***	(4.70)***	(2.14)**	(4.82)***	(4.21)***	(2.39)**
Themselves	2.118	2.197	1.889	2.229	2.069	1.871
	(5.11)***	(3.53)***	(3.43)***	(5.59)***	(3.36)***	(3.92)***
Others	1.156	1.475	0.857	1.272	1.559	0.924
	(0.62)	(1.21)	(-0.51)	(1.05)	(1.38)	(-0.28)
<b>Macro-level</b>						
<b>variables</b>						
Local unemployment	0.959	0.977	0.949	0.973	0.984	0.976
rates	(-2.33)**	(-0.94)	(-2.19)**	(-1.62)	(-0.69)	(-1.21)
Share of tertiary	0.987	0.977	0.993	0.994	0.980	1.003
	(-1.67)*	(-2.18)**	(-0.74)	(-0.80)	(-2.15)**	(0.33)
Local economic	1.025	1.022	1.028	1.012	1.006	1.008
growth	(0.97)	(0.62)	(0.84)	(0.51)	(0.20)	(0.27)
$\alpha$ ##	1.042	0.950	1.046	1.058	0.915	0.997
	(0.052)***	(0.073)***	(0.073)***	(0.053)***	(0.032)***	(0.032)***
Log likelihood	-2290.263	-963.038	-1293.894	-2151.989	-922.589	-1205.599
chi2(.)	330.35	140.09	230.06	295.95	176.15	224.69
P value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Likelihood-ratio test of unobserved heterogeneity						
chibar2(01)	18.20	2.46	3.39	7.35	0.63	1.45
Prob>=chibar2	0.0000	0.059	0.033	0.003	0.213	0.114
Number of obs.	2134	851	1283	2071	850	1221

Notes: \*\*\*, \*\* and \* indicate 1, 5 and 10% level of significance, respectively.

# For dummies variables, reference groups are gender=male, bad healthy, not community party member, no spouse now, no children now, employed in SOEs pre-displacement, using government as the job search channel.

##. Estimated standard error of the coefficient is presented.

**Table2.5 Elasticities of Unemployment Duration w. r. t. Income and Unemployment Benefits, by Gender**

Variables	From 1993		From 1998		From 1993		From 1998	
	Coefficient	Elasticity	Coefficient	Elasticity	Coefficient	Elasticity	Coefficient	Elasticity
Ln(Income of other members)	0.003 (0.14)	-0.003	0.006 (0.25)	-0.006	-0.011 (-0.59)	0.013	-0.006 (-0.27)	0.006
Ln(property income)	-0.022 (-1.23)	0.024	0.012 (0.73)	-0.012	-0.041 (-2.05)**	0.045	0.012 (0.66)	-0.012
Ln(UB)	-0.127 (-4.17)*	0.134	-0.107 (-3.87)***	0.102	-0.112 (-4.41)***	0.123	-0.106 (-4.32)**	0.106
Ln (pre-displacement earnings)	-0.202 (-3.34)*	0.213	-0.477 (-5.44)***	0.456	-0.181 (-3.95)***	0.197	-0.314 (-6.00)**	0.314
$\alpha$	0.950***		1.046***		0.915***		0.997***	

**Table2.6 Oaxaca Decomposition in Unemployment Duration by Gender**

Expected duration of:	From 1993		From 1998	
	Month*	Percent (%)	Month*	Percent (%)
Female	50.96 <sup>1</sup>		50.33	
Male	40.48		44.27	
Males' $\beta$ , females' X	32.02		34.28	
Females' $\beta$ , males' X	52.99		55.12	
Gender disparities in ED	10.48		6.06	
Difference due to				
Coefficients	15.78		8.45	
Explanatory variables	-5.30		-2.39	

\*The unemployment duration is much longer in China than those in Czech and Slovak Republics (Ham et al,1999). There might be two more reasons being responsible for such a large difference. On one hand, some Chinese laid-offs claim that they are still in the unemployment position even when they have re-employed in the informal sectors. As a result, the unemployment duration is lengthened. On the other hand, the data used by Ham (1998,1999) are entitlement-based, so the unemployment duration might be shortened.

## Appendix

**TableA1: The employment conditions by gender (pre-unemployed)**

	Male			Female			F/M
	Freq.	Percent	Cum.	Freq.	Percent	Cum.	
<b>Financial situation</b>							
Bankrupt	176	38.18	38.18	276	38.07	38.07	1.00
Loss	130	28.20	66.38	210	28.97	67.03	1.03
Profit	55	11.93	78.31	64	8.83	75.86	0.74
Government Agency	8	1.74	80.04	4	0.55	76.41	0.32
Institution	13	2.82	82.86	23	3.17	79.59	1.12
Others	79	17.14	100.00	148	20.41	100.00	1.19
<b>Industry structure</b>							
Agriculture	7	0.81	0.81	11	0.89	0.89	1.10
Mining	18	2.08	2.89	16	1.29	2.18	0.62
Manufacturing	352	40.69	43.58	453	36.65	38.83	0.90
Energy	14	1.62	45.20	13	1.05	39.89	0.65
Construction	42	4.86	50.06	43	3.48	43.37	0.72
geology and water conservancy	1	0.12	50.17	5	0.40	43.77	3.33
communication, transportation	89	10.29	60.46	50	4.05	47.82	0.39
Trade	139	16.07	76.53	301	24.35	72.17	1.52
Financial	8	0.92	77.46	14	1.13	73.30	1.23
Housing	6	0.69	78.15	10	0.81	74.11	1.17
Non-financial Services	71	8.21	86.36	168	13.59	87.70	1.66
Government Agencies	40	4.62	90.98	66	5.34	93.04	1.16
Others	78	9.02	100.00	86	6.96	100.00	0.77
<b>Occupation distribution</b>							
Managerial personnel	60	6.94	6.94	26	2.10	2.10	0.30
Technicians & engineers	143	16.53	23.47	171	13.83	15.94	0.84
Staff	107	12.37	35.84	209	16.91	32.85	1.37
Trade	91	10.52	46.36	214	17.31	50.16	1.65
Service	107	12.37	58.73	112	9.06	59.22	0.73
Manufacturing	263	30.40	89.13	334	27.02	86.25	0.89
Others	94	10.87	100.00	170	13.75	100.00	1.26

**Table A2 Results of Cox Regression**

	From 1993 <sup>1</sup>			From 1998 <sup>2</sup>		
	Pooled regression <sup>3</sup>	Male	Female	Pooled regression <sup>3</sup>	Male	Female
	Haz.Ratio (t-statistics)	Haz.Ratio (t-statistics)	Haz.Ratio (t-statistics)	Haz.Ratio (t-statistics)	Haz.Ratio (t-statistics)	Haz.Ratio (t-statistics)
Gender#	0.668 (-5.44)***	--	--	0.666 (-5.58)***	--	--
Experience	1.100 (5.43)***	1.076 (3.05)***	1.101 (3.26)***	1.099 (5.25)***	1.109 (4.13)***	1.082 (2.58)***
Experience square	0.998 (-3.89)***	0.999 (-2.60)***	0.999 (-1.56)	0.998 (-4.28)***	0.998 (-3.75)***	0.999 (-1.53)
Education	1.115 (6.32)***	1.041 (1.58)	1.204 (7.66)***	1.096 (5.22)***	1.041 (1.58)	1.159 (5.82)***
Health#	1.866 (5.24)***	2.066 (3.77)***	1.903 (3.99)***	1.708 (4.26)***	2.045 (3.72)***	1.595 (2.68)***
Party #	1.486 (3.82)***	1.255 (1.42)	1.586 (3.50)***	1.427 (3.43)***	1.194 (1.12)	1.585 (3.43)***
Marriage#	0.789 (-1.75)*	1.195 (0.94)	0.586 (-2.82)***	0.872 (-0.98)	1.040 (0.19)	0.736 (-1.64)*
Child aged 0-6#	1.473 (2.26)**	1.266 (0.87)	1.770 (2.44)**	0.878 (-1.13)	0.833 (-0.99)	0.954 (-0.29)
Child aged 7-18	1.213 (1.69)*	1.341 (1.66)*	1.192 (1.11)	1.100 (0.63)	0.990 (-0.03)	1.240 (1.13)
Child aged 19-22	1.006 (0.05)	0.943 (-0.30)	1.028 (0.17)	0.787 (-2.31)**	0.694 (-2.28)**	0.863 (-1.02)
Child aged over 22	0.853 (-1.24)	1.017 (0.09)	0.808 (-1.13)	0.713 (-3.22)***	0.773 (-1.78)*	0.713 (-2.16)**
Log(Income of other members)	0.994 (-0.50)	1.000 (-0.01)	0.997 (-0.14)	0.984 (-1.26)	0.993 (-0.39)	0.994 (-0.29)
Log(Property income)	0.991 (-0.93)	0.978 (-1.66)*	1.009 (0.70)	0.983 (-1.31)	0.962 (-2.06)**	1.010 (0.61)
Log(Pre-displacement earnings)	0.781 (-7.45)***	0.834 (-4.54)***	0.679 (-7.82)***	0.798 (-7.28)***	0.839 (-4.08)***	0.742 (-6.27)***
Log(UB)\$	0.915 (-5.48)***	0.899 (-4.63)***	0.911 (-4.13)***	0.906 (-5.93)***	0.895 (-4.64)***	0.904 (-4.35)***
<b>Pre-displacement ownership</b>						
Collective#	0.871 (-1.50)	1.109 (0.68)	0.812 (-1.85)*	1.037 (0.39)	1.231 (1.35)	0.969 (-0.27)
Private and self-employed	1.533 (3.91)***	1.504 (2.54)**	1.555 (2.92)***	1.448 (3.25)***	1.444 (2.25)**	1.427 (2.24)**
Foreign investment and Joint venture	1.329 (1.97)**	1.601 (2.49)**	1.236 (1.00)	1.318 (2.07)**	1.397 (1.81)*	1.320 (1.42)

Other ownership	1.223 (2.02)**	1.126 (0.79)	1.264 (1.82)*	1.274 (2.46)**	1.189 (1.17)	1.349 (2.31)**
<b>Job search channel</b>						
Labor Market#	1.140 (0.59)	1.278 (0.67)	1.050 (0.18)	1.340 (1.23)	1.616 (1.43)	1.133 (0.39)
Relatives& friends	1.744 (4.74)***	2.432 (4.54)***	1.386 (2.27)**	1.813 (4.92)***	2.323 (4.23)***	1.466 (2.51)**
Themselves	1.886 (5.27)***	2.001 (3.41)***	1.710 (3.75)***	2.019 (5.67)***	2.004 (3.36)***	1.858 (4.06)***
Others	1.222 (1.08)	1.469 (1.36)	0.907 (-0.39)	1.282 (1.24)	1.543 (1.42)	0.962 (-0.14)
<b>Macro-level variables</b>						
Local unemployment rates	0.970 (-2.22)**	0.975 (-1.21)	0.961 (-2.12)**	0.979 (-1.49)	0.984 (-0.76)	0.976 (-1.25)
Share of tertiary	0.991 (-1.51)	0.980 (-2.34)**	0.997 (-0.43)	0.996 (-0.67)	0.981 (-2.18)**	1.003 (0.40)
Local economic growth	1.021 (1.08)	1.017 (0.64)	1.022 (0.79)	1.007 (0.35)	1.005 (0.18)	1.007 (0.26)
Log pseudolikelihood	-6191.656	-2316.201	-3221.174	-5946.508	-2256.296	-3071.354
Wald chi2(.)	355.68	167.38	315.74	338.46	181.44	231.51
P value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Number of obs.	2134	851	1283	2071	850	1221

Notes: \*\*\*,\*\* and\* indicate 1, 5 and 10% level of significance, respectively.

# For dummies variables, reference groups are the same as those in table8.

1. The hazard ratios are 0.679 for pooled Cox regression, 0.597 for male Cox regression and 0.685 for female Cox regression if the dummy variable of access to UB (with access to UB=1; without access to UB=0) is used instead of the quantity variable of “lnubeni”, the results of other variables are similar, and the results are available through request on the authors.

2.The hazard ratios are 0.643 for pooled Cox regression, 0.590 for male Cox regression and 0.651 for female Cox regression if the dummy variable of access to UB (with access to UB=1; without access to UB=0) is used instead of the quantity variable of “lnubeni”, the results of other variables are similar, and the results are available through request on the authors.

3. The pooled Cox regression results are similar with the pooled Weibull regression without unobserved heterogeneity.