

Wages, Participation and Unemployment in the Economic Transition of Urban China^{*}

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April 2007

^{*} The authors thank Wing Suen and Xiangdong Wei for their helpful comments. They acknowledge partial financial support from the Research Grants Council of Hong Kong (N_CUHK 417/01). The data used in this paper can be obtained from the Household Section, Urban Survey Department, National Bureau of Statistics, Beijing, China.

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April 6, 2007

Abstract. Wages, participation and unemployment are major topics for researchers of the labor market. How have these measures evolved in the economic transition of urban China? Have they evolved in accordance with those in the Statistical Yearbook and previous studies? We find that the wage level has been largely understated in the Statistical Yearbook. Our estimated participation rate is lower than that of Giles, Park, and Cai (2006) because the Urban Household Surveys (UHS) that we use include middle and small cities that are absent in their data. The unemployment rate in the published official statistics, the most frequently doubted by researchers, turns out to be significantly biased after the mid-1990s. Our analysis shows that the unemployment rate is much higher than that of the official statistics, but lower than that estimated with the China Urban Labor Survey (CULS) data in Giles, Park, and Zhang (2005). Our analysis provides the first systematic comparison of the wage level from different sources, and supplements the existing estimates on participation and unemployment using a more representative dataset for urban China.

JEL classification. J21; J31; J64; O53; P20

Keywords. Wages, participation rates, unemployment rates, economic transition

1 Introduction

Levels of wages, participation and unemployment are major evaluations of the development of a labor market, and bias in estimation can offer misleading implications for policy. First, wage structure is an important issue in economic development. Wage growth and wage inequality are tightly connected with the welfare of urban residents. The serious problem of urban inequality and poverty related to the wage structure has been a focus of researchers, policy makers and urban residents. In addition, the gender wage gap and wage inequality across regions are important indicators of balanced economic development. Second, the labor force participation rate is an important variable in economic analysis, in that it evaluates the labor supply in the whole society and is strongly connected with wage levels, fertility, the business cycle, and so on. However, there is no systematic official report on participation rates. Third, we focus on the fluctuations in the unemployment rate and compare our results with those in the published official statistics. The unemployment statistics are an important issue in urban China, because they not only indicate the state of economic health, but are also the foundation for laying down welfare-related policies. The purpose of this paper is to use data from the Urban Household Survey (UHS) in different cities to provide a more credible and consistent assessment.

The last twenty years have witnessed economic transition for many countries, including the former Soviet Union, Central and Eastern Europe, and China. Different from other countries, China has experienced a gradual and partial economic transition since the late 1970s. The consequences of the economic transitions in all of these countries are also quite different. Other transitional economies have recorded abrupt recessions, reflected as highly negative GDP growth, a decline in wage and employment, and an increase in unemployment (Brainerd, 1998; Basu, Estrin and Svejnar, 2005). However, China has experienced smooth and gradual economic growth in the

last two and a half decades of economic transition. GDP growth, in particular, has been recorded at levels that lead the world. The liberalization of the labor market has broken the "iron bowl" (*tie fan wan*) of guaranteed lifetime employment for workers in state-owned enterprises. Especially in the restructuring of state-owned enterprises that began during the mid-1990s, a large proportion of workers were laid off (*xia gang*). Given these institutional changes in the labor market, what are the values of wages, participation rates and unemployment rates in urban China? How have they evolved during the economic transition?

Although the literature has provided some analyses of the wage, participation and unemployment levels, there has been little systematical analysis of changes in all three in a relatively long period of time. Zhang, Zhao, Park, and Song (2005) and Zhang, Han, Liu, and Zhao (2007) focus on the economic returns to education and the gender wage gap without comparing the wage level with that of the Statistical Yearbook. Even the Statistical Yearbook does not provide information on the participation rate. Giles, Park, and Cai (2006) document the participation rate from 1996 to 2001 using data from the China Urban Labor Survey (CULS). However, the dataset only contains survey information from five large cities (Shanghai, Wuhan, Shenyang, Fuzhou and Xi'an), of which one is municipality and the other four are capital cities for the respective provinces. We believe that individuals in middle and small cities have different labor market behavior from those in large cities, and the results using the UHS may be more representative for studies of the urban labor market. Moreover, the CULS results only cover a relatively short period, and we can not find a full perspective in the participation changes over the gradual economic transition. As far as the unemployment rate is concerned, similar comments can be made for Giles, Park, and Zhang (2005) that also use the CULS data. Hence, we believe that our study using the UHS will fill the void in the past literature, and the estimates from

our analysis are more representative of urban labor market behavior. This is the first study that systematically reports the continuous change in the wage, participation and unemployment levels over a long period of time. In addition, timely reports of changes in the labor market are very important for policy making, and thus we provide an analysis of labor market behavior in years that are more recent than in the existing literature.

This paper is organized as follows. Section 2 describes the data that we use. We compare the wage level in the UHS with that in Statistical Yearbook in Section 3. Section 4 presents the fluctuations in participation rates during the economic transition. In Section 5, we compare the unemployment rate in the UHS with that in the Statistical Yearbook and in previous studies, and examine how the unemployment rate has evolved throughout the economic transition. Section 6 concludes the paper.

2 Data

We use data from annual Urban Household Surveys (UHS) conducted by the National Bureau of Statistics from 1988 to 2003. The data were collected by the Household Section of the Urban Survey Department, which is responsible for collecting, processing and providing statistical data relating to market prices and the income and expenditure of urban households. This department belongs to the National Bureau of Statistics of China, which is in charge of economic statistics in China.

The sampling size of our sample is based on the proportions of population in different regions at the same time. The urban sample frame includes households in all urban regions, including cities of all scales in China. It is designed to represent the provincial and national levels on the whole (Han, 2006). Respondents are chosen to be representative in over 220 cities and towns of various sizes and various regions. The data set that we use includes information on five provinces and

one municipality: Beijing, Guangdong, Liaoning, Shaanxi, Sichuan, and Zhejiang. These are roughly representative of China's different regions. Beijing is a rapidly growing municipality in North-Central China. Guangdong and Zhejiang are dynamic economic provinces, standing in the East-coastal and South-coastal regions. Liaoning is a heavy-industry province in the Northeast. Shaanxi and Sichuan are relatively less developed provinces in the Northwest and Southwest respectively. Furthermore, the family type and employment structure of the sample are inspected carefully to maintain the representativeness and coherence of the data over time. Besides, the investigators adjust for abnormally changing households, the income of aged offspring, and sample rotations. Finally, the data inputting is carefully verified. Hence, the data are quite convincing in their representativeness and consistency (Han, 2006).

We choose age 16 as the entry age into the labor market according to the international standard, and age 60 as the retiring age. Although there is some difference between genders, we separate individuals into age groups in our analysis to make our results comparable with those of the Statistical Yearbook and previous literature.

3 Changes in Wage Level during Economic Transition

The wages we calculate from the UHS include salaries, bonus, subsidies, other income from enterprises, and price allowances for state-owned and collectively-owned enterprises. For privately-owned or individually-owned enterprises, employment income is defined as the net labor income from these enterprises. As far as the price allowance is concerned, it is one of the many allowances in the centrally-planned economy that are designed to provide certain benefits after the fluctuation of the local price level. Thus, all kinds of employment income are included as earnings. The wage level of

the UHS data is comparable with that of the Statistical Yearbook, because both take into account all labor income. In addition, we use the nominal wage to ensure comparability with the nominal wage in the Statistical Yearbook.

We first compare the wage level in the Statistical Yearbook and the UHS data. Table 1 presents the values, with the corresponding graph depicted in Figure 1. The average wage of the Yearbook is calculated as the overall wage in the year divided by the average number of workers in that year, according to the notes of the Statistical Yearbook.¹ Wages rose significantly, especially after 1997. We find that the wage level in the UHS data is always higher than that in the Statistical Yearbook. In particular, the difference between the two estimation results increases greatly after 1992, reaches a height in 1997, and then declining in recent years (see Figure 2).

Why is the wage underestimated in the Yearbook? There are some differences in the wage components and estimation methodologies. Although both have taken all labor income into consideration, the included items may not be the same, particularly when there were higher proportion of goods benefits for earlier years. For example, many kinds of subsidies such as coupons or goods benefits might not be included in the sum of the local overall wage in the Yearbook, so the labor income could be biased downward. However, the UHS collects related information and even asks urban residents to estimate the actual benefits after converting goods benefits into cash. Hence, the UHS data have higher wage levels than those in the Yearbook. The large increase in the gap around 1997 may be due to the restructuring of state-owned enterprises, which has made millions of workers unemployed. However, these individuals might have been included in calculating the workers in the year, which makes the denominator higher. Nevertheless, our analysis excludes these individuals in calculating the

¹As the number of workers changes throughout a year, the average number of workers in this year is used as the denominator. The overall wage refers to the sum of all labor income in a year, including bonuses and subsidies.

number of workers, and our estimated wages are therefore much higher than those in the Yearbook during this restructuring period. With the decentralization of the wage setting, goods benefits have been replaced with cash benefits, and have been included in the wages. Hence, the difference in the wage level in the UHS and the wage level in the Yearbook has been quite small in recent years. We believe that the wage level reported in the Yearbook will thus reflect the income and welfare of local urban residents more accurately in the future.

The previous analysis has shown that the wage level in the Statistical Yearbook has a certain bias. What does the UHS wage level turn out to be for different people across different regions?

We take a glance at the gender wage gap first. Figure 3 depicts the movement of wages for men and women. We find that the gap enlarges through years. In particular, it increases greatly when it enters the 21st century. The expanding wage dispersion, the ageing trend in the labor market for men compared with women, and sex discrimination might have caused the gender wage gap to increase.² To ascertain whether inter-region wage differentials contribute to this gap, we present the wage for men, women, and the gap in Tables 2-1, 2-2, and 2-3 respectively.³ The wage differentials between provinces are quite significant, and widen across time. In relatively poor regions such as Liaoning province, the female wage level increases at a lower rate than does the male wage level. However, in advanced region such as Guangdong, women have enjoyed wage growth that is comparable with that of men. If we only focus on the changes in gender gap, then we find that Guangdong and Sichuan have the least rise in the gender wage differential, and that the rest experience much higher rises, especially Liaoning province. Liaoning was an important heavy-industry

²For a thorough discussion of the gender gap in wages, see Zhang, Han, Liu, and Zhao (2007).

³The gender gap is defined as $\ln W_M - \ln W_F$, where W_M is the male wage, and W_F is the female wage.

base and experienced the most painful restructuring during our sample period. The transition placed women at a serious disadvantage compared with men, with the gender wage differential rising at a shocking rate to as high as 40% in 2003.

The wage pattern also diverges across age groups, as reported for men and women in Tables 3-1 and 3-2. The wage rises smoothly as the individual ages in the earlier years of the sample period before labor market decentralization, but this becomes concave with wage reform, and declines for the oldest age group in recent years. For women, the wage level is significantly disadvantageous for old-age workers. Thus, the gender gap enlarges greatly for older age groups, although the entry wage for men and women is quite similar. We could attribute the enlarging gender gap with age to the differential in human capital accumulation between genders and labor market discrimination against old-age women.

We deflate the wage to the real wage according to the CPI of every province and city (1988 = 100) to ascertain the changes in the real wage over time, from which we can examine the achievements in labor income during economic transition. In Figure 4, we find that the real wage increases greatly on the whole, and similarly for men and women. It follows that the economic growth of urban China has a significant effect on the benefits of workers. The real wage only moved downward around 1994, when inflation was very high.

4 Labor Force Participation in Economic Transition

First, we define the labor force participation rate according to our data. We define UN as the number of unemployed people, EMP as the number of employed people, and NP as the number of non-participants. In our data, we define those who work at

least 1 day of the year with positive wages as employed individuals. Those who are searching for jobs or waiting for the assignment of jobs (*dai ye*) are unemployed individuals. Finally, those who do not want to work, housewives, retirees and individuals with disabilities who are not working are all considered to be non-participants. The size of the group *POP* (population) is the sum

$$POP = EMP + UN + NP \quad (1)$$

The participation rate *PR* is the ratio $(EMP + UN)/POP$. The unemployment rate *UR* can be calculated as $UN/(EMP + UN)$.

Figure 5 depicts the movement of participation rates using UHS data. The participation rate rises a little with the striking economic growth in the early 1990s, but then declines greatly with economic transition. The labor force participation in the centrally-planned period was especially high, because the government was responsible for assigning jobs to all urban residents, who were willing to work because traditionally everyone had shared work and income. However, with the economic restructuring that accelerated in the mid-1990s, many workers were laid off, in particular old-aged workers. A large proportion of those workers decided to leave the labor market rather than spend much time finding a new job. Hence, the declining participation rate was a consequence of the restructuring of state-owned enterprises.

Although the Statistical Yearbook does not provide information on participation rates and it is very difficult to calculate those from the available information, Giles, Park and Cai (2006) use China Urban Labour Survey (CULS) data to estimate participation rates from 1996 to 2001. The CULS was collected in five cities: Shanghai, Wuhan, Shenyang, Fuzhou and Xi'an, different from our survey. However, because the CULS only includes municipality and capital cities, we believe that our UHS sample is more representative of urban regions in that it consists of survey in middle

and small cities as well as municipality and capital cities. The CULS participation rate declines from 83.3% in 1996 to 74.4% in 2001, while our result shows that the urban participation rate declines from 80.8% to 74.1% during the same period. The UHS participation rate is a little lower than the CULS rate, because small cities tend to have lower participation rates than large cities.

We compare the participation rate between men and women in Figure 6. The male participation rate is much higher than the female rate, which is common in most of countries. Although the participation rates for men and women both move downward over time, the rate of decline for women is greater, which reflects the more dramatic changes in women's labor behavior in China's gradual economic transition. The CULS estimation of the male participation rate changes from 93% to 86.3% from 1996 to 2001, while our estimation result declines from 86.3% to 81.3%. The CULS results for female participation rates are 74.4% in 1996 and 63.1% in 2001, with the corresponding results of 75.4% and 67.2% in the UHS estimation. Comparison of the two estimations reveals that men have lower participation rates in smaller cities, but this is reversed for women. It seems that men and women have labor participation rates that are more similar in middle and small cities, but their participation rates in large cities turn out to be closer to those in advanced economies. Hence, the difference in estimation results between the two datasets may indicate the extent of decentralization of the local labor market.

We now look at the participation rate across regions and groups. Table 4 reports the participation rate in the five provinces and one city. We find that the rate does not vary to a large extent between regions. Shaanxi has the lowest participation rate at the beginning, and it remains stationary over the sample period. Guangdong has lower decline in the participation rate in economic transition, and the participation rate is the highest in the 21st century. All other regions experience similar declines

in participation rates. The participation rates for men and women are presented in Tables 5-1 and 5-2. We find that Beijing has the largest decline in male participation, and Liaoning, Zhejiang and Sichuan experience a striking decline in the female participation rate. Tables 6-1 and 6-2 show participation rates across age groups. For men, the most dramatic decline happens between age 16 and 22, when a higher proportion of men choose to pursue higher education rather than participate in the labor market. The decline in other age groups is quite similar. Women's labor participation change turns out to be comparable with that of men, but with a larger decline for each age group. A low proportion of women participate in the labor market when the age exceeds 50, but that of men is still very high compared with participation in other age groups.

5 Unemployment Rates in Economic Transition

Unemployment in urban China is an important question that has attracted the attention of researchers from all over the world. However, there has not been a convincing and consistent assessment of the unemployment rate. As we know, the commonly used Statistical Yearbook only takes into account those unemployed who are registered in local governments. Hence, the published data on the unemployment rate have understated the real unemployment situation, which is well known to researchers. Thus a credible and consistent estimation of the real unemployment has been an urgent task. This section mainly deals with that problem, and provides a consistent analysis of unemployment rate over a relatively long period from 1988 to 2003. We also compare our results with those of Statistical Yearbook as well as the previous literature.

We defined the unemployment rate as UR in the previous section. A comparison of the unemployment rate in the UHS data and in the Statistical Yearbook is now depicted in Figure 7. The unemployment rate in the Yearbook is calculated as the

number of registered unemployed people divided by the number of all participants. Rural migrants, those re-employed after retiring, and foreign workers are excluded from the denominator.⁴ We can thus observe rapid growth in the unemployment rate from 1988 to 2003, particularly after 1995 when the restructuring of state-owned enterprises accelerated. The unemployment rate still seems to be very low (below 4.5%) even in the most recent years. We find that in the early years of the sample period, the two estimation results are quite similar, but the divergence increases after 1996: the unemployment rate rises smoothly in the Statistical Yearbook, but it increases sharply in the UHS estimation. The difference enlarges greatly when the restructuring of state-owned enterprises took place and a great number of workers were laid off. When we compare our result with that of Giles, Park and Zhang (2005) using CULS data, we find that the UHS estimation is a little lower, a rise from 2.8% in 1996 to 8.2% in 2001, against a rise from 7.2% in 1996 to 12.7% in 2001. The difference has two sources: one is that the CULS consists of specific information on job searches, with which the authors estimated job search status, but we cannot;⁵ the other is that the CULS only takes into account a municipality and capital cities, but we include middle and small cities in our analysis. Smaller cities are influenced less by the restructuring of state-owned enterprises, so the true unemployment rate might be overstated in the CULS estimation. We believe that the definition of and sample for the estimation of the unemployment rate is critical in the final result. The amount of increase in the unemployment rate in the UHS and the CULS is quite similar, and the small increase in the Statistical Yearbook appears to understate the real rise in the unemployment rate.

⁴The UHS does not contain survey information on migrants and foreign workers in the urban regions. In addition, we exclude the re-employed after retiring in our sample. Therefore, the UHS results are comparable with the Yearbook results because the sample selection is the same.

⁵Giles, Park and Zhang (2005) use information on job-searching activities to identify passive job searching. If those individuals undertaking passive job searches are treated as non-participants rather than unemployed, the calculated unemployment rate is slightly lower.

We compare the unemployment rate in the five provinces and one city from the UHS data with that of the Statistical Yearbook in Tables 7-1 and 7-2. The unemployment rates in the early 1990s are quite low in all regions, and there are no significant differentials in the results between the UHS and the Statistical Yearbook. However, with economic restructuring, the differentials expand to a large extent and turn out to be larger in high-unemployment regions. Figure 8 describes the difference in the two estimations of unemployment rates. It is calculated as $UN_{YB} - UN_{UHS}$ for every region, in which UN_{YB} and UN_{UHS} refer to the unemployment rate in the Yearbook and the UHS data respectively. From the graph we find that the bias in Beijing is small while in the other regions is quite large, especially in high-unemployment regions such as Liaoning, Sichuan and Guangdong. The unemployment rate is actually much higher than the published data in these regions, and the difference enlarges over time.

We compare the male and female unemployment rate using the UHS data in Figure 9. The unemployment rate is quite similar for men and women in the early 1990s, but the gender gap enlarges after 1996. The female unemployment situation deteriorates more seriously than the male rate. In 2003, the female unemployment rate is 13.7%, almost double that of males (8%). The enlarged gap in unemployment rates may reflect gender discrimination on the demand side of the labor market. Appendix Tables 1-1 and 1-2 indicate the male and female unemployment rates for every region, and we find that the gender gap in the less developed regions such as Liaoning, Shaanxi and Sichuan turns out to be most significant, because women are badly influenced in the restructuring of SOEs in these regions.

6 Concluding Remarks

The labor market in Chinese urban regions has experienced a dramatic change in the last twenty years of economic transition. We observe rising urban wage and unemployment levels and declining participation levels. The data of the Statistical Yearbook have provided a useful reference for our insight into how wages and unemployment evolve during the important period of economic transition.

In our analysis, we find that the wage level has largely been understated in the Statistical Yearbook. For the participation rate, our estimation result is lower than that of Giles, Park, and Cai (2006) because the UHS includes middle and small cities as well as municipalities and capital cities. The average participation rate does not vary greatly across regions, but the gender gap in participation does. Finally, the unemployment rate in the published official statistics, the most frequently doubted by researchers, turns out to be significantly biased after the mid-1990s. Our analysis shows that the unemployment rate is much higher than that of the official statistics, but lower than that estimated with the CULS data in Giles, Park, and Zhang (2005). Although the two micro-survey datasets (UHS and CULS) have different results in the estimation of the unemployment rate, both reveal similar increases in the unemployment rate. We believe that the estimation in the unemployment rate is strongly influenced by the definition and sample selection of unemployment, but the similar increase in the unemployment rate using the two micro-survey datasets at least works against the slight rise in the unemployment rate published in the official Yearbook.

Our analysis provides the first systematic comparison of the wage level reported in different sources, and supplements the available estimation of participation and unemployment by using a more representative data in urban China. A good estimation of labor market behavior is very important in understanding the real development of the labor market, and we hope that more follow-up studies will be conducted on the

accurate estimation of major features of Chinese labor market.

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Table 1. Wages in the Statistical Yearbook and calculated from the UHS, 1988-2003

Year	Wages of Yearbook	Wages of UHS
1988	1747	2024.37
1989	1935	2414.87
1990	2140	2581.31
1991	2340	2869.54
1992	2711	3329.27
1993	3371	3929.08
1994	4538	5537.81
1995	5500	6748.20
1996	6210	7623.71
1997	6470	8817.59
1998	7479	9467.61
1999	8346	9753.14
2000	9371	11217.04
2001	10870	12195.58
2002	12422	12755.01
2003	14040	14150.98

Table 2-1. Wages of the Five Provinces and One City for Men in the UHS, 1988-2003

Year	Beijing	Liaoning	Zhejiang	Guangdong	Sichuan	Shaanxi
1988	2250.40	1914.21	2354.62	3053.19	1894.13	1750.20
1989	2247.06	2136.96	2663.08	3817.56	2215.65	2166.05
1990	2557.11	2364.52	2814.34	4001.71	2362.34	2344.99
1991	2876.29	2537.51	3150.70	4584.74	2578.22	2598.63
1992	3461.82	2860.33	3738.96	6561.68	2999.73	2740.66
1993	4187.42	3282.94	4905.65	7655.94	3311.02	3024.92
1994	6373.87	4610.45	7070.79	11102.21	4444.46	3767.19
1995	8069.36	5748.64	8611.56	12681.19	5446.18	4822.06
1996	9164.91	5923.42	9934.56	14938.63	5806.54	5320.62
1997	11129.63	7024.71	11185.53	17105.78	6972.79	5867.25
1998	11604.86	7295.37	11548.94	18359.17	7422.37	6250.41
1999	12887.68	7632.51	12607.75	17781.78	8245.71	6757.00
2000	14209.73	8987.78	13993.04	20837.77	8620.56	7247.18
2001	15565.89	9596.50	15880.59	21914.99	8959.32	8671.81
2002	18340.81	10420.91	18805.49	20325.53	10810.89	10104.97
2003	20863.94	11558.02	21896.38	23272.99	11787.14	11073.42

Table 2-2. Wages of the Five Provinces and One City for Women in the UHS, 1988-2003

Year	Beijing	Liaoning	Zhejiang	Guangdong	Sichuan	Shaanxi
1988	1915.74	1614.95	2016.58	2560.04	1593.54	1533.14
1989	1892.03	1841.02	2237.87	3280.41	1865.65	1787.75
1990	2259.86	2103.33	2424.98	3337.81	1989.06	1961.25
1991	2704.31	2120.74	2629.30	3868.83	2221.40	2208.64
1992	3074.76	2474.26	3095.16	5174.21	2501.79	2230.74
1993	3587.20	2684.96	3832.66	6244.61	2660.27	2450.76
1994	5155.58	3587.26	5558.65	8907.70	3679.40	2925.23
1995	6444.89	4550.90	6857.56	10587.65	4364.81	4004.80
1996	7807.72	4498.34	7872.83	12500.30	4721.67	4516.22
1997	9003.75	5301.00	9030.35	14271.42	5817.20	4845.98
1998	9333.16	5752.62	9441.27	15861.90	6506.40	5102.40
1999	10479.90	5922.59	9961.91	15740.99	7138.43	5506.90
2000	11494.26	6996.89	11137.80	17657.62	7356.24	5642.23
2001	12860.86	6731.83	12833.35	19528.19	7864.18	6595.02
2002	14335.13	7246.34	14178.81	16727.73	9164.44	7993.54
2003	15635.12	7782.79	16049.20	18350.57	9712.27	8562.84

Table 2-3. Gender Wage Gap of the Five Provinces and One City in the UHS, 1988-2003

Year	Beijing	Liaoning	Zhejiang	Guangdong	Sichuan	Shaanxi
1988	0.16	0.17	0.15	0.18	0.17	0.13
1989	0.17	0.15	0.17	0.15	0.17	0.19
1990	0.12	0.12	0.15	0.18	0.17	0.18
1991	0.06	0.18	0.18	0.17	0.15	0.16
1992	0.12	0.14	0.19	0.24	0.18	0.21
1993	0.15	0.20	0.25	0.20	0.22	0.21
1994	0.21	0.25	0.24	0.22	0.19	0.25
1995	0.22	0.23	0.23	0.18	0.22	0.19
1996	0.16	0.28	0.23	0.18	0.21	0.16
1997	0.21	0.28	0.21	0.18	0.18	0.19
1998	0.22	0.24	0.20	0.15	0.13	0.20
1999	0.21	0.25	0.24	0.12	0.14	0.20
2000	0.21	0.25	0.23	0.17	0.16	0.25
2001	0.19	0.35	0.21	0.12	0.13	0.27
2002	0.25	0.36	0.28	0.19	0.17	0.23
2003	0.29	0.40	0.31	0.24	0.19	0.26

Table 3-1. Wages of Men in Different Age Groups of the UHS, 1988-2003

Year	16 to 22	23 to 30	31 to 40	41 to 50	51 to 60
1988	1164.76	1736.84	2224.99	2463.37	2617.03
1989	1462.81	2063.58	2576.35	2982.99	3062.77
1990	1600.37	2107.34	2769.69	3080.02	3295.94
1991	1594.05	2462.31	3131.43	3420.92	3556.07
1992	2163.89	3002.13	3520.20	4110.81	4150.36
1993	2708.03	3668.60	4125.47	4901.53	4745.62
1994	3733.69	5354.13	5917.18	6701.78	6863.13
1995	4566.42	6197.46	7319.43	7935.47	8477.22
1996	5050.57	6533.92	8491.48	8641.56	9530.89
1997	6033.87	7572.92	9561.58	10423.64	10321.24
1998	6277.19	8133.98	10400.63	10845.48	10740.96
1999	6321.28	8846.22	10798.28	11001.85	11337.24
2000	7290.32	10361.43	12189.97	12700.46	13298.32
2001	7476.66	11196.90	13662.66	13889.84	12958.85
2002	7520.22	11130.52	14424.35	14957.25	14559.46
2003	8238.54	13191.31	16661.21	16459.17	16049.10

Table 3-2. Wages of Women in Different Age Groups of the UHS, 1988-2003

Year	16 to 22	23 to 30	31 to 40	41 to 50	51 to 60
1988	1148.64	1601.28	1933.40	2108.54	2170.46
1989	1394.83	1985.96	2268.32	2504.50	2601.95
1990	1481.02	2032.58	2495.04	2569.85	2824.80
1991	1802.19	2314.59	2759.89	2830.30	3186.69
1992	2072.25	2650.39	3124.28	3393.57	2995.11
1993	2635.66	3128.90	3675.94	3847.62	3207.73
1994	4025.99	4415.29	4922.11	5469.35	4595.24
1995	4723.76	5579.86	6090.83	6495.89	5500.40
1996	5196.39	6412.82	6972.32	7240.07	6321.46
1997	6351.82	7040.94	8208.78	8405.42	6259.92
1998	5976.99	7800.09	8988.77	9103.98	7444.35
1999	6387.13	8142.20	9247.35	9461.73	6649.63
2000	8057.40	9325.47	10546.07	10542.31	8089.19
2001	9230.50	10261.52	11526.31	11204.29	9656.81
2002	7390.35	9945.44	11697.65	11404.27	10208.77
2003	8699.91	11389.80	12682.71	12111.58	10999.20

Table 4. Participation Rates in Five Provinces and One City: UHS, 1988-2003

Year	Beijing	Liaoning	Zhejiang	Guangdong	Sichuan	Shaanxi
1988	0.799	0.848	0.822	0.816	0.821	0.757
1989	0.736	0.845	0.828	0.793	0.807	0.748
1990	0.777	0.856	0.803	0.805	0.815	0.734
1991	0.768	0.824	0.818	0.807	0.823	0.749
1992	0.844	0.849	0.836	0.811	0.836	0.785
1993	0.844	0.849	0.830	0.809	0.827	0.785
1994	0.819	0.838	0.837	0.815	0.834	0.781
1995	0.814	0.833	0.847	0.816	0.839	0.777
1996	0.778	0.811	0.825	0.818	0.834	0.758
1997	0.769	0.807	0.820	0.792	0.837	0.767
1998	0.760	0.769	0.799	0.808	0.814	0.755
1999	0.740	0.744	0.781	0.826	0.797	0.726
2000	0.738	0.750	0.733	0.800	0.750	0.703
2001	0.734	0.750	0.722	0.791	0.727	0.702
2002	0.716	0.739	0.720	0.742	0.695	0.731
2003	0.696	0.729	0.704	0.747	0.697	0.734

Table 5-1. Participation Rates of Men in Five Provinces and One City: UHS, 1988-2003

Year	Beijing	Liaoning	Zhejiang	Guangdong	Sichuan	Shaanxi
1988	0.865	0.872	0.861	0.853	0.854	0.818
1989	0.902	0.883	0.887	0.827	0.844	0.803
1990	0.842	0.883	0.858	0.842	0.861	0.801
1991	0.888	0.882	0.888	0.832	0.878	0.831
1992	0.888	0.887	0.882	0.845	0.888	0.843
1993	0.889	0.892	0.887	0.848	0.884	0.864
1994	0.877	0.884	0.896	0.855	0.891	0.846
1995	0.865	0.886	0.899	0.863	0.881	0.832
1996	0.833	0.875	0.883	0.861	0.881	0.823
1997	0.836	0.880	0.869	0.818	0.877	0.854
1998	0.847	0.859	0.858	0.839	0.860	0.846
1999	0.805	0.815	0.851	0.848	0.842	0.810
2000	0.788	0.811	0.832	0.849	0.823	0.801
2001	0.801	0.821	0.825	0.830	0.793	0.797
2002	0.762	0.811	0.796	0.792	0.754	0.810
2003	0.752	0.795	0.784	0.798	0.766	0.821

Table 5-2. Participation Rates of Women in Five Provinces and One City: UHS, 1988-2003

Year	Beijing	Liaoning	Zhejiang	Guangdong	Sichuan	Shaanxi
1988	0.738	0.825	0.785	0.781	0.788	0.698
1989	0.591	0.809	0.773	0.759	0.771	0.698
1990	0.717	0.829	0.748	0.769	0.773	0.670
1991	0.645	0.768	0.756	0.783	0.772	0.670
1992	0.800	0.811	0.793	0.780	0.787	0.731
1993	0.798	0.806	0.777	0.772	0.773	0.712
1994	0.764	0.792	0.782	0.777	0.780	0.718
1995	0.763	0.780	0.798	0.772	0.799	0.725
1996	0.724	0.749	0.769	0.776	0.789	0.692
1997	0.711	0.739	0.771	0.766	0.799	0.684
1998	0.685	0.681	0.743	0.777	0.772	0.668
1999	0.682	0.675	0.714	0.804	0.755	0.646
2000	0.692	0.690	0.642	0.753	0.683	0.609
2001	0.669	0.680	0.626	0.754	0.665	0.610
2002	0.672	0.670	0.647	0.693	0.640	0.656
2003	0.641	0.665	0.629	0.699	0.634	0.651

Table 6-1. Participation Rates of Men in Different Age Groups: UHS, 1988-2003

Year	16 to 22	23 to 30	31 to 40	41 to 50	51 to 60
1988	0.468	0.965	0.986	0.970	0.778
1989	0.474	0.956	0.976	0.972	0.798
1990	0.435	0.944	0.985	0.975	0.832
1991	0.462	0.951	0.979	0.982	0.801
1992	0.479	0.978	0.994	0.989	0.814
1993	0.472	0.975	0.998	0.994	0.816
1994	0.428	0.968	0.994	0.992	0.810
1995	0.416	0.950	0.993	0.985	0.799
1996	0.361	0.942	0.990	0.990	0.798
1997	0.318	0.913	0.989	0.982	0.810
1998	0.306	0.923	0.987	0.975	0.800
1999	0.322	0.932	0.977	0.964	0.721
2000	0.294	0.927	0.971	0.968	0.719
2001	0.252	0.928	0.963	0.966	0.758
2002	0.200	0.892	0.935	0.937	0.759
2003	0.173	0.888	0.922	0.924	0.767

Table 6-2. Participation Rates of Women in Different Age Groups: UHS, 1988-2003

Year	16 to 22	23 to 30	31 to 40	41 to 50	51 to 60
1988	0.514	0.967	0.964	0.900	0.218
1989	0.478	0.971	0.966	0.881	0.206
1990	0.497	0.934	0.974	0.890	0.238
1991	0.456	0.972	0.957	0.858	0.207
1992	0.522	0.978	0.983	0.902	0.297
1993	0.479	0.965	0.974	0.891	0.321
1994	0.478	0.971	0.978	0.869	0.298
1995	0.453	0.957	0.978	0.873	0.294
1996	0.364	0.952	0.973	0.872	0.284
1997	0.335	0.937	0.972	0.874	0.268
1998	0.304	0.938	0.960	0.832	0.243
1999	0.327	0.938	0.935	0.809	0.277
2000	0.330	0.909	0.926	0.789	0.219
2001	0.290	0.919	0.925	0.774	0.253
2002	0.193	0.890	0.892	0.809	0.303
2003	0.189	0.866	0.878	0.812	0.286

Table 7-1. Unemployment Rates in Five Provinces and One City: Statistical Yearbook

Year	Beijing	Liaoning	Zhejiang	Guangdong	Sichuan	Shaanxi
1988						
1989						
1990	0.004	0.022	0.022	0.022	0.037	0.028
1991	0.004	0.018	0.02	0.019	0.034	0.024
1992	0.004	0.019	0.025	0.02	0.038	0.022
1993	0.004	0.025	0.026	0.019	0.035	0.025
1994	0.004	0.025	0.031	0.024	0.038	0.035
1995	0.004	0.027	0.032	0.026	0.037	0.035
1996	0.006	0.036	0.03	0.025	0.037	0.052
1997	0.007	0.039	0.034	0.027	0.039	0.064
1998	0.007	0.034	0.032	0.023	0.037	0.031
1999	0.006	0.035	0.035	0.023	0.037	0.026
2000	0.008	0.037	0.035	0.025	0.04	0.027
2001	0.012	0.032	0.037	0.029	0.043	0.032
2002	0.014	0.065	0.042	0.031	0.045	0.033
2003	0.014	0.065	0.042	0.029	0.044	0.035

Table 7-2. Unemployment Rates in Five Provinces and One City: UHS, 1988-2003

Year	Beijing	Liaoning	Zhejiang	Guangdong	Sichuan	Shaanxi
1988	0.000	0.004	0.016	0.036	0.045	0.037
1989	0.017	0.009	0.023	0.026	0.027	0.052
1990	0.022	0.010	0.018	0.020	0.042	0.035
1991	0.021	0.016	0.025	0.028	0.032	0.045
1992	0.004	0.009	0.015	0.032	0.030	0.041
1993	0.009	0.014	0.019	0.035	0.035	0.042
1994	0.003	0.013	0.017	0.040	0.045	0.041
1995	0.007	0.020	0.016	0.043	0.036	0.040
1996	0.005	0.024	0.024	0.031	0.036	0.046
1997	0.023	0.025	0.022	0.026	0.043	0.047
1998	0.023	0.045	0.024	0.044	0.056	0.056
1999	0.019	0.045	0.025	0.044	0.074	0.068
2000	0.020	0.065	0.039	0.059	0.116	0.077
2001	0.029	0.076	0.061	0.103	0.137	0.075
2002	0.038	0.124	0.098	0.118	0.123	0.084
2003	0.032	0.127	0.075	0.130	0.135	0.092

Appendix Table 1-1. Unemployment Rates of Men in Five Provinces and One City: UHS, 1988-2003

Year	Beijing	Liaoning	Zhejiang	Guangdong	Sichuan	Shaanxi
1988	0.000	0.003	0.014	0.036	0.050	0.040
1989	0.010	0.009	0.023	0.034	0.038	0.043
1990	0.016	0.014	0.020	0.017	0.043	0.040
1991	0.027	0.019	0.023	0.017	0.032	0.052
1992	0.002	0.008	0.020	0.025	0.028	0.048
1993	0.010	0.018	0.022	0.028	0.033	0.050
1994	0.006	0.011	0.015	0.031	0.037	0.045
1995	0.006	0.020	0.023	0.030	0.034	0.038
1996	0.002	0.021	0.035	0.023	0.041	0.038
1997	0.026	0.021	0.024	0.017	0.033	0.040
1998	0.026	0.042	0.021	0.034	0.042	0.042
1999	0.021	0.040	0.027	0.033	0.050	0.061
2000	0.021	0.048	0.035	0.057	0.090	0.072
2001	0.026	0.063	0.045	0.097	0.090	0.072
2002	0.045	0.088	0.079	0.101	0.097	0.062
2003	0.034	0.087	0.061	0.105	0.110	0.062

Appendix Table 1-2. Unemployment Rates of Women in Five Provinces and One City: UHS,
1988-2003

Year	Beijing	Liaoning	Zhejiang	Guangdong	Sichuan	Shaanxi
1988	0.000	0.006	0.019	0.036	0.041	0.034
1989	0.027	0.008	0.022	0.018	0.017	0.062
1990	0.029	0.007	0.016	0.023	0.041	0.029
1991	0.013	0.011	0.027	0.040	0.033	0.037
1992	0.006	0.011	0.010	0.039	0.033	0.033
1993	0.009	0.010	0.016	0.042	0.036	0.034
1994	0.000	0.015	0.018	0.050	0.055	0.038
1995	0.007	0.021	0.008	0.057	0.038	0.042
1996	0.007	0.027	0.013	0.039	0.031	0.056
1997	0.020	0.029	0.020	0.036	0.053	0.055
1998	0.020	0.048	0.027	0.054	0.071	0.074
1999	0.017	0.051	0.022	0.055	0.098	0.076
2000	0.020	0.084	0.044	0.062	0.144	0.084
2001	0.033	0.091	0.081	0.108	0.189	0.079
2002	0.031	0.166	0.120	0.137	0.152	0.109
2003	0.031	0.174	0.091	0.157	0.164	0.128

Figure 1. Average Wages in the UHS and Statistical Yearbook, 1988-2003

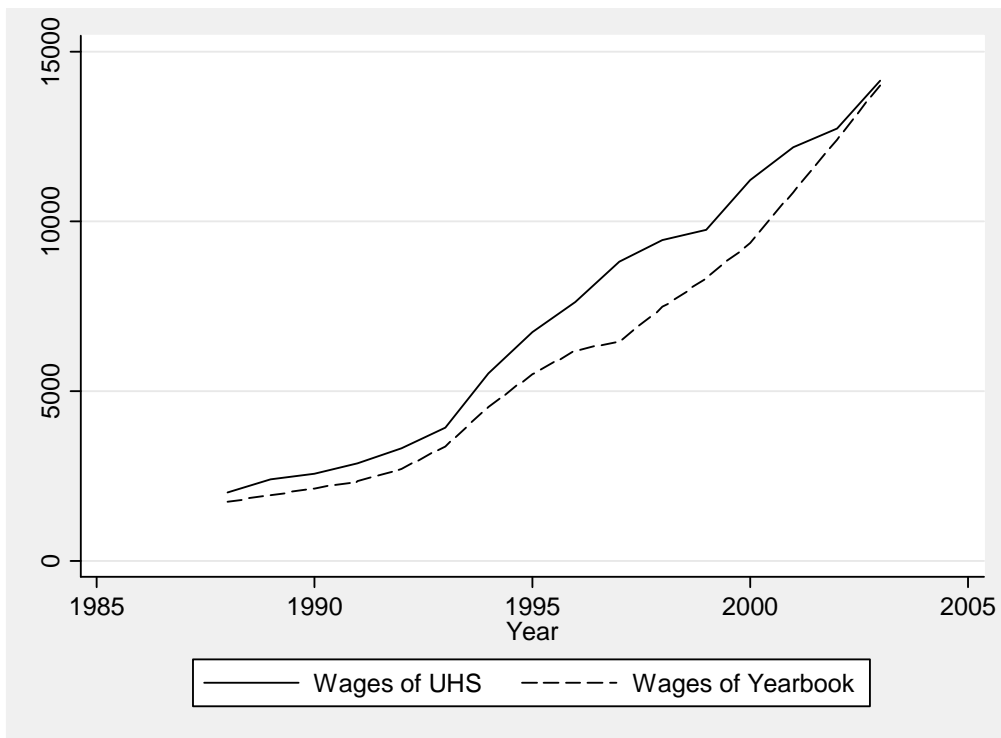


Figure 2. The Wage Gap between the Statistical Yearbook and the UHS, 1988-2003



Figure 3. Average Male and Female Wages in the UHS Data, 1988-2003



Figure 4. Real Log Wage in the UHS data, 1988-2003, deflated by CPI

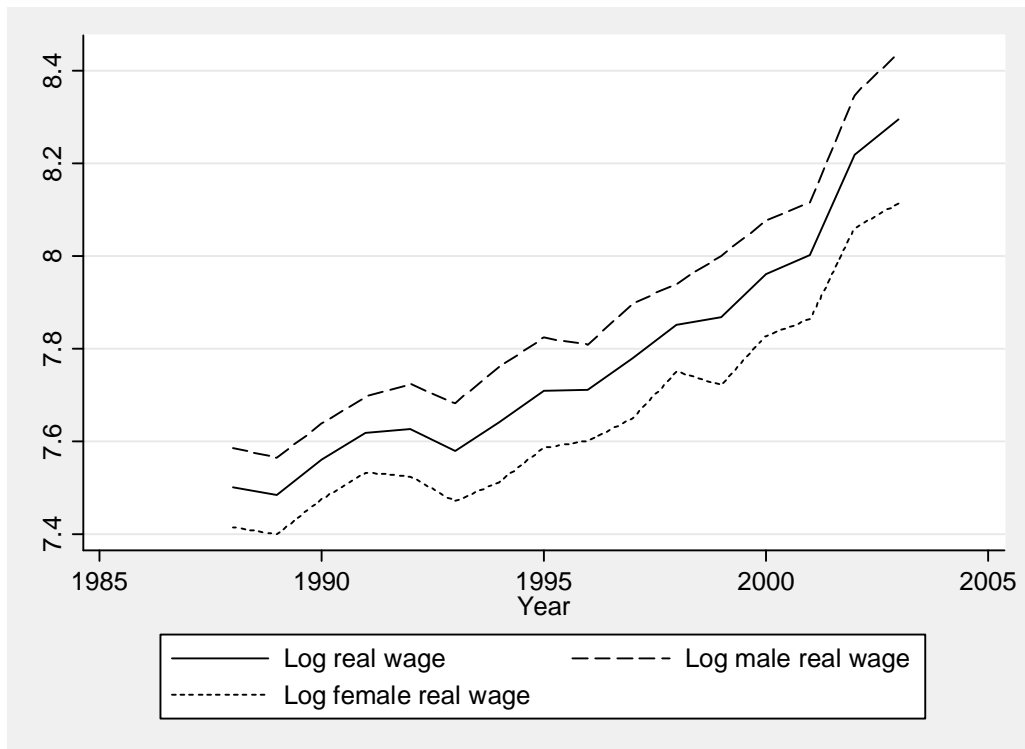


Figure 5. The Participation Rate in the UHS Data, 1988-2003

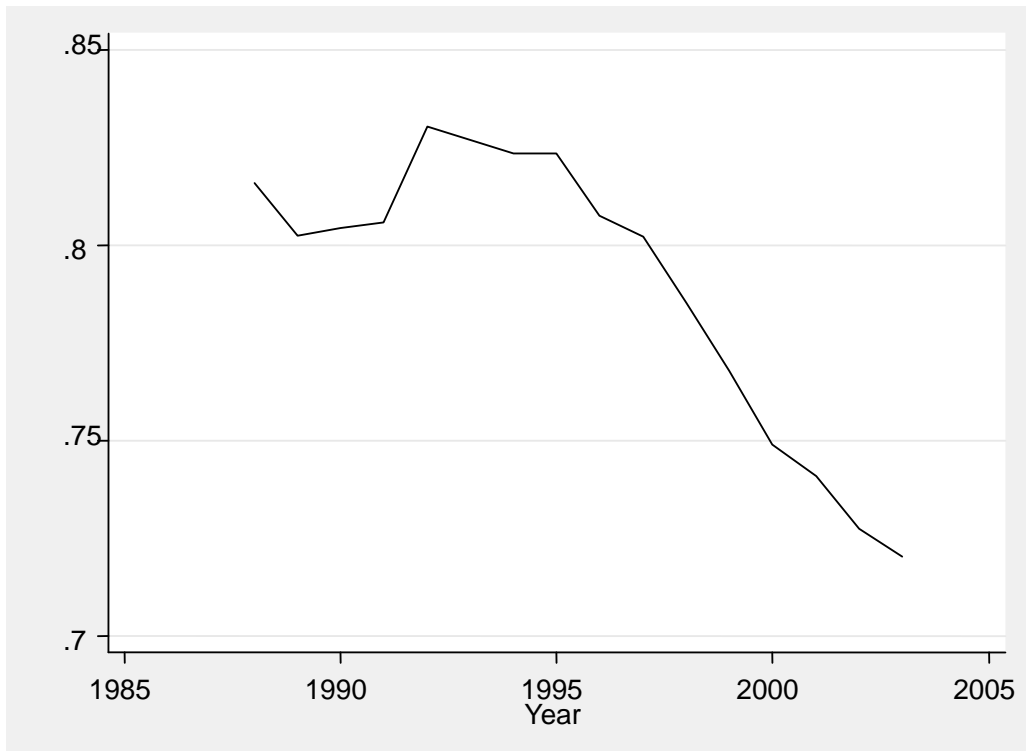


Figure 6. The Male and Female Participation Rate in the UHS Data, 1988-2003

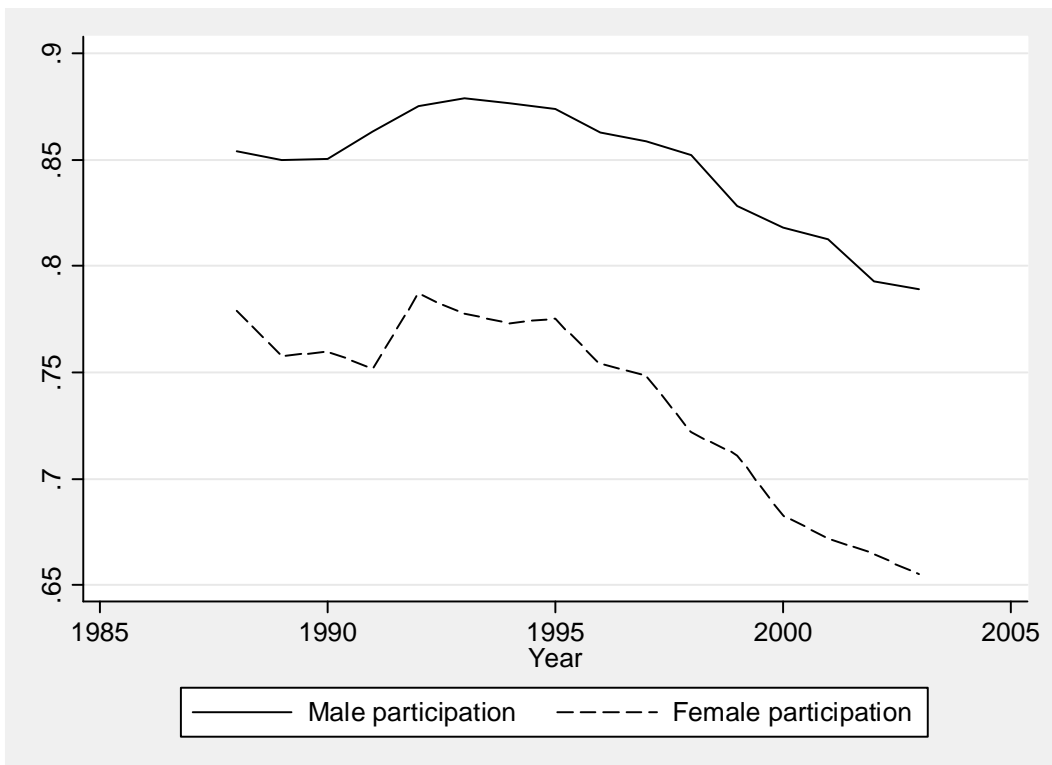


Figure 9. The Male and Female Unemployment Rate in the UHS Data, 1988-2003

