Björn Gustafsson
Department of Social Work
Göteborg University
P.O. Box 720
SE 405 30 Göteborg
Sweden
and Institute for the Study of Labor (IZA),
Bonn, Germany
e-mail: Bjorn.Gustafsson@socwork.gu.se
and
Ding Sai
Institute of Ethnology and Anthropology
Chinese Academy of Social Sciences
Zhongguancen Nandajie,
Beijing 100081
People's Republic of China
dingsai@cass.org.cn,
s-ding@sohu.com

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Unemployment and the Rising Number of Non-Workers in Urban China – Causes and Distributional Consequences.[i]

Abstract

This paper analyzes the growth of the number of persons that are not working for an income in urban China for 1988, 1995, 2002 and 2007 using surveys covering large parts of the country. Employment rates by age and gender are reported for each year under study. People not working are categorized into the states of being students, unemployed, early-retired, homemakers and a residual category. Probability models relating labor market state to household variables and the city employment rate are estimated. Furthermore, personal income and disposable income of non-workers and workers is examined.

We show that while only 6 percent of people in work active ages were non-workers in 1988, the proportion had increased to 15 percent in 1995, to 29 percent in 2002 and to as much as 36 percent in 2007. This development is driven by newer cohorts of young adults studying longer than previous cohorts and nowadays frequently experiencing unemployment, as well as the process of economic restructuring. The latter led to increasingly higher probabilities for older, shorter-educated and female workers being unemployed, early-retired, and homemakers in urban China up to 2002. Thereafter, however, a larger number of workplaces were created, and such patterns were weakened while unemployment became more concentrated to young adults. Local employment conditions understandably affect the probability of being in many states of non-work. A main conclusion of the study is that many impulses towards increased income inequality from an increased number of non-workers were absorbed by the households, as many students and unemployed live with persons with above-average incomes. Still, the unemployed and homemakers are concentrated to the lower part of the distribution of income, particularly in 2002.

Key words: China, Education, Unemployment, Early retirement, income

JEL Classification codes: D31 J16 J21 J26 J64

1. Introduction

Before the transition almost all women aged 16 to 55 and men aged 16 to 60 living in urban China worked for an income. This all changed when China modernized and moved toward a market economy. In this paper we show that while only 6 percent of people in work active ages and who had a urban residents permit were non-workers in 1988, the proportion had increased to 15 percent in 1995, to 29 percent in 2002 and to as much as 36 percent in 2007. In most economies such a rapid change in the expenditure burden would have been difficult to cope with. China, however, has experienced very rapid economic growth, as well as favorable demographic changes due to many young persons entering the labor force while few children are being born. In addition, an increasing proportion of all paid work in urban China is performed by rural migrants, who generally work many hours though are paid less than urban residents.

The rise of non-work in urban China is a result of various processes. One process that is shared with many rich countries is rapid education expansion, leading to larger and larger numbers of young adults not working for an income during the period of study. Another process is the structural change induced by China's transformation from a planned economy to a market economy. Such changes have affected school-leavers as well as middle-aged and older workers.

During the planning époque, the transition from being a student to the first job (which often became life-long) typically did not involve periods of enforced non-work. In contrast, more recent school-leavers have to find jobs themselves and rely on social networks. This typically means that school-leavers in contemporary China experience periods of unemployment before gaining a foothold in working life, as is also the case in many rich countries. On this aspect has the Hu Jintao – Wen Jiabao leadership-period which starting at end of 2003 by promoting a rather rapid expansion of higher education been a continuation of a trend that had started earlier.

The transition towards a market economy has also lead to the restructuring of Chinese work units and caused many layoffs among middle-aged and older workers. Particularly after the second half of the 1990s and some years thereafter, a considerable number of workers were displaced, and many left the work force before the general retirement age. These processes have not proceeded at random. For example unskilled workers have met increased competition from the large influx of recent rural-to-urban migrants, a situation that scarcely affects skilled workers. Women and older workers are often considered to be less attractive potential employees and for such persons the option of non-work is a more socially acceptable state than for prime-aged males. Furthermore, China's economic restructuring has been a spatially uneven process affecting some locations and cities more than others. The structural change of the economy during the Hu – Wen period so far experienced differs in one important aspect from the immediately preceding years when the total number of jobs in urban China decreased drastically. The Hu – Wen period has so far been characterized by increasingly larger number of jobs in urban China as a whole which has made the employment problem decrease, although not to the level it had before restructuring SOEs in the mid 90s.

This paper aims to increase the knowledge on non-work in urban China in several directions. At the descriptive level it provides details on the changed gender age profile of work and non-work that to our knowledge has not been reported before. We use large samples taken from

many cities across China to study the situation in each of the years 1988, 1995, 2002 and 2007. We argue that it is meaningful to distinguish between five different categories of non-workers: students, unemployed, early retired, homemakers and a residual category. Determinants of being in one of the five states can be assumed to differ at least to some extent. In one research questions we ask: What characterizes people who belong to various categories of non-workers? Starting from the presumption that determinants differ throughout the life cycle, we investigate the role played by gender, education, household characteristics as well as whether the employment situation in the city where the person resides affects the probability of being in different states of non-work, and if so, how.

As a second research question we ask: What economic well-being does various categories of non-working people have? The personal income of the non-worker plays a role in this, but also the income of other household members as well as the expenditure burden of the household. We expect to find considerable variation across, as well as within, different categories of non-workers. For example, a considerable number of students are the sole children of well-off or relatively well-off parents, while other students are not as privileged in this respect. Some early-retired individuals receive relatively generous pensions and live with a partner with above average personal income, while other early-retired individuals are less fortunate in one or both of these respects. The situation of unemployed persons can be expected to be worse, as unemployment compensation often is meager if received at all. It is an open question if the situation is similar for homemakers, which would be the case if the respondents to the survey we work with communicate this alternative instead of the alternative 'unemployed'. Alternatively, has urban China seen a reappearance of traditional housewives, spouses to well-off workers? Our research also aims to provide new knowledge on the issues of family roles and gender differences in urban China' during two decades of rapid economic expansion and structural change.

By now a number of authors have addressed issues (which we develop in the next section) on the changed labor market in urban China since the introduction of reform. Several authors have researched issues regarding laid-off workers and the unemployed. A number of authors have estimated earnings or wage functions, sometimes linked to the study of the gender wage gap. There are also writings about inequality of remuneration and of household income. In contrast to what is the situation for Western countries we have not been able to find much research on the changed transition from school to work among young adults in urban China. The same is also the case for the issue of transition into early retirement. Our study also has the potential to contribute to the knowledge on the economic well-being of persons who are non-workers in urban China (a topic which has attracted very little attention in the literature that we are aware of), and thereby to the literature on urban China's changed income distribution.

Turning to results we show that the age at which a majority of young adults begin to work increased from age 17 for young men in 1988 to age 24 in 2007; an increase of seven years during the two decades. The development for young women was rather similar. Parallel to this, larger proportions of people in most age brackets did not work for pay. Furthermore, there was a clear development towards lower ages when exiting the labor force from 1988 to 2002, but the real retirement age thereafter bounced back to become the same in 2007 as in 1988. A major result is that the process of increased non-work in urban China had an outspoken education and gender bias from 1988 to 2002. Among middle-aged and older workers, a short education as well as being a female profoundly increased the probability of belonging to various states of non-work in 2002. However, between 2002 and 2007, the first

five years when Hu and Wen were the top leaders, more jobs were created, and such influences lessened. In contrast we also find that there is little indication of gender differences of non-work among young persons. Furthermore, local labor market conditions affect the probability of being in many states of non-work in an understandable way. Open unemployment is only one of the consequences of a low employment rate in a city. When the employment rate is low, young adults are more likely to study and middle-aged and older workers face elevated probabilities of retiring early, becoming a homemaker or belonging to a residual category of non-workers.

Another major finding is that in several cases, income deficits due to non-work are cushioned by most importantly income from working household members or by transfers. Students are more likely than not to have parents with high personal incomes. A substantial number of the early-retired make sizable contributions to the household income with their pensions. These are main reasons why we can report that students and the early-retired are relatively evenly represented across the household income distribution. In contrast, the unemployed and homemakers are concentrated to the lower deciles of the distribution of household income, particularly in 2002. The increased proportions of unemployed and homemakers have thus directly contributed to make the distribution of income at the household level in China more unequal while possible contributions from the increased proportion of students and early-retired are not equally straightforward to verify. While the first five years of the Hu and Wen leadership has meant a trend change when it comes to the number of jobs in urban China, there is also continuity in widened inequality along some dimensions. One dimension is spatial as the dispersion in employment rates across cities has continued to increase. Another is continued tendencies towards increased gender inequality as that wives share of couple's income has continued to decrease, while the contribution of husbands continues to rise.

The topic in this chapter is closely related to Gustafsson and Deng (in this volume) as that chapter also analyzes changes in urban income inequality with an emphasize on the Hu and Wen period as it appears up to 2007 and use the same data. Gustafsson and Deng (in this volume) describe the development of poverty and analyses how changes in various income components have affected the development of income inequality, topics not addressed in this chapter. Furthermore, while Gustafsson and Deng (in this volume) investigate how the relation between on one hand education, household size and some other characteristics and on the other hand income has changed, this chapter focuses on households with members who do not work.

The rest of the paper is laid out as follows: In the next section we describe the context while in Section 3 we present our data and from it describe how non-work varies across the life cycle for men and women for the three years studied. In the same section we introduce five categories of non-workers while analyses of what characteristics affect belonging to various states are investigated in Section 4. The research question on economic well-being of various categories of non-workers is addressed in Section 5. The paper ends with a summary and discussion of the findings.

2. Context and conjectures

As the Chinese economy has grown and become more complex, the job requirements faced by potential workers have become higher. This together with the transition from a planned economy (where income disparities from education were rather small) as well as the increased

competition less qualified workers have met from migrant workers has meant that incentives for pursuing a longer education have become larger than before. Results from recent studies that have investigated changes in rates of return to education in China indicate this, see for example Zhang et al (2005) and Knight and Song (2008). Rapid economic growth has also made it possible for parents to finance longer educations for their children, and for local and central governments to allocate ever larger resources to the education sector. To this has to be added Chinas adoption of the one-child policy meaning that few children born in urban China since 1979 have siblings who could compete for parental resources. Growth rates on education spending have typically been even higher than the rapid growth in GDP (Hannum et al 2008, p 222. provides information for the period 1992 to 2004).

From this background it becomes understandable that, as in many other contemporary countries, newer birth cohorts in China are educated considerably longer than earlier birth cohorts. Such changes have not always been smooth. For example, data show no trend of increase in the transition rate from primary to secondary level during the 1980s (Hannum et al., 2008, p 231). In contrast, starting at a rate of slightly over 70 percent, this transition rate went up to over 90 percent in the 1990s. In the beginning of the reform period, universities and colleges in urban China had relatively few students given the large population size. Thus in 1980 as few as 4 percent of graduates from secondary education continued to the tertiary level. Since then, however, this transition rate has increased year by year with few exceptions. For example, in 2000 as many as 73 percent of students who graduated from secondary level went to the tertiary level. The expansion of higher education in China during more recent decades has been rather impressive. The number of students enrolled in regular institutions of higher education increased for our years of investigation from 0.2 million in 1988, to 0.3 million in 1995, to 0.9 million in 2002, to a stunning 1.9 million in 2007 (NBS Statistical Yearbook, various years). As a consequence, China's share of the world's more highly educated labor force is becoming larger and larger, a process that unquestionably has global consequences.

The expansion of education is a major factor behind the process of young adults entering the labor force in urban China at higher ages. In China, students typically do not work for pay during the school terms or holidays. Another difference to the west where the school to work transition has attracted considerable research interest (see for example Ryan, 2001) is that the nature of the process has changed dramatically across school-leaver cohorts. Until 1984 the government assigned jobs to graduates. Thereafter, a mixed system prevailed in which young job seekers also had the alternative of finding first jobs by themselves. Since 1993 this is the only alternative offered to the graduates (Zhao and Wen 2008). These changes have taken place in an environment where supply is larger than demand and similarly to in rich countries many school leavers in China have nowadays difficulty in finding a first job.

Urban parents are on average much better-off than their rural counterparts in China and can afford schooling fees and other educational expenditures as well as the forgone income when a studying child is not economically active. Working in the same direction, school administrations in urban areas are much richer than those in rural areas (particularly those in poor areas), and therefore provide more varied opportunities for learning (Tsang and Ding, 2005). As a consequence, school enrolment and education attainment varies profoundly by location in China (Connelly and Zheng, 2003, Hannum and Wang, 2006). The aspect of spatial variation we will investigate here is to what extent employment at the city level affects probabilities of being in various categories of non-workers. To what extent is there evidence

for the presumption that the state of "student" is more probable where employment opportunities are limited?

We are also interested to ascertain to what extent intergenerational links in education activities affect probabilities of non-work. True, during the Cultural Revolution (1966 to 1976) education policy of China was aimed at counteracting educational disparities due to social background. However, such policies are now history, as the restructuring of the educational system has been portrayed as "embracing neo-liberalism" (Mok et al. 2009). Education has become commercialized, public institutions are no longer entirely public and private schooling has emerged. For example, in 2007 almost half of the funds for institutions of higher education came from tuition and miscellaneous sources, which were not the case previously when also fewer funds were spent (NBS, Statistical Yearbook of China, various years). Statistical data show that the yearly average tuition fee paid by households in 2007 was several thousand Yuan, or a sum equivalent to the average household income for three to four months.[1] Chinese parents thus are helping their children financially more and more, and paying tuition fees has become a problem for many. To finance children's educational expenditures has become a top savings motive for Chinese residents.[2] Thus one should expect that as observed almost universally, the probability of being a student in contemporary urban China is affected by parental characteristics.

Turning to gender, however, the question is more open regarding whether gender differences in the probability of being a student can be shown in contemporary urban China. The situation is different in rural China where household incomes are much lower, parents often have two children, daughters are expected to marry and leave the household and few persons can look forward to an old-age pension. In such an environment there is an economic rationale for parents to favor education of sons over education of daughters. However, in all of these respects the situation is different in urban China; most fundamentally, the one child policy means that parents do not have a choice between investing in the education of a son or a daughter.

We now turn to the other major process leading to non-work, that of economic restructuring, from which follows the growth of unemployment as well as the fall in labor force participation. Before the mid 1990s, there was virtually no open unemployment in urban China, thus there was no need for a system of unemployment insurance. This changed, however, as central policies promoted diversifying ownership of State Owned Enterprises and allowed inefficient work units to go bankrupt. As a consequence, the number of SOE workers fell from its maximum of 113 million in 1995 to 41 million in 2002. Parallel to this, the number of workers in collective units fell from 31 million in 1995 to 20 million in 2002. The gigantic drop of 83 million jobs in the combined state and collective sectors during the seven years between the second and third year under study was only partly cushioned by 19 million new jobs created in firms registered as having a private owner, 7 million created in self-employment and 6 million created in limited liability companies (NBS, Statistical Yearbooks various years). As more jobs were lost than created and the population in work active ages increased, the employment problem among Chinas registered urbanites became more serious.

The development from 2002 to 2007, the first part of the Hu – Wen leadership period and the third and fourth years studied is different. True, the number of SEO workers and workers in collective enterprises continued to decrease. Yet during this period, losses were down to

[1] See http://bbs.edu5a.com/showtopic-422.html,
[2] See (http://test.pbc.gov.cn/publish/diaochatongjisi/193/1685/16850/16850_.html#

around 2 million employed persons per year, not 2 million per year as was the case during the preceding period. In total, 10 million jobs were lost from 2002 to 2007; 7 million in SEOs and 3 million in collective enterprises. This means that in 2007 the SEO still constituted the largest ownership sector and employed 64 million workers, while the collective sector employed 7 million. More than counteracting those losses the privately owned sector added 26 million workers to its wage roles, the limited liability sector added 10 million workers and the number of self-employed increased by the same number of workers. In 2007 the privately owned sector (employing 46 million workers) was the second largest ownership sector (NBS, Statistical Yearbook various years).

For our research questions, it is fundamental that the employment shocks that hit urban China from the mid-1990s and for some years thereafter were particularly hard in certain locations, for less qualified workers, among older workers and for females (Appleton et al, 2002, Gilles et al 2006). True, in a growing economy many displaced workers were able to find new jobs, but labor demanded for many segments in the labor market for many periods did not increase at a pace that kept up with the supply of school leavers, displaced workers and the large number of new rural to urban migrants. Furthermore, the urban Chinese labor markets are not well developed; they are hindered because geographical mobility is difficult due to regulations on residence permits. Open unemployment has thus become a reality for many urban residents since the mid-90s, while for others the employment shock has caused them to leave the labor force.

It is difficult to provide a precise picture of the extent of open unemployment and drop in labor force participation in urban China as well as its evolution. There is at present no official, reliable and timely countrywide labor force survey from which unemployment rates and labor force rates (comparable to those in OECD countries) can be computed annually.[3] However, a survey of five large cities reported increases in the unemployment rate for urban residents computed by international standards to be 6.8 percent in 1996 with a rise to 11.1 percent in 2002 (Giles et al, 2006). These figures indicate an unemployment rate similar in magnitude to that of contemporary rich countries and they are considerably higher than the rate of registered unemployed which stood at 2.9 percent and 4.0 percent for the same two years (NBS, Statistical Yearbook, various years).

During the pre Hu – Wen years with rapid job destruction, several policy initiatives aimed at reducing the consequences of the employment problem in China were introduced or broadened. Thus in 1999 the National Unemployment Insurance Rules were extended beyond the state enterprise sector and made mandatory for all urban employees (Duckett and Hussain, 2008). Funded by contributions from employers and employees, this system provides laid-off workers who have registered and paid contributions, limited benefits (Xia Gang Bu Tie) or re-training (Zai Jiu Ye Pei Xun). Some work units have provided laid-off workers an early retirement (ZaoTui) for the years until retirement; age 55 for women and 60 for men. Still another measure to ease consequences of job losses was the creation of the category *Xiagang*, a situation where workers were off-duty but kept their ties with the work unit. If the work unit could afford it, the workers received a low wage and some welfare benefits (Wong and Ngok, 2006).

[3] Starting in 2009 NBS has conduct labor market surveys, but results from them have not been published when this text is written in September 2010. The survey was forestalled by a pilot survey in 2005 by NBS, Ministry of Human Resources and Social Security of PRC, Ministry of Agriculture of PRC and All China Federation of Trade Unions. The results from the survey are published in "China Labor Statistical Yearbook 2006"

During the period of very rapid job destructions it became common for work units to buy out middle-aged and older employees from the work unit with a lump sum related to future earnings cumulated up to regular retirement (Mai Duan Gong Lin). They became "early retired" together with workers who had accumulated a work history of 30 years and who voluntarily chose to terminate their employment upon receiving a monthly stipend. Still, a major policy shift during the years preceding the period of the Hu-Wen leadership was the expansion of the system of social assistance to urban residents, which resulted in an increase in number of recipients from less than 2 million in 1998 to 22 million in 2003 (NBS Statistical Year book various years, see also Leung, 2006, Gustafsson and Deng, 2007 and Gao et al 2009).[4]

However, when labor market conditions improved parallel to the introduction of the Hu – Wen leadership much of policies toward jobless workers changed. Work units no longer have Xiagang workers, and it has become rare for work units to buy out middle-aged and older workers with a lump sum. The Di Bao system is not longer expanding in terms of number of recipients, although the number on the welfare roles has not decreased either. [5]

We can conclude from the discussion so far that the income consequences of restructuring have attracted much attention in policymaking. Nevertheless, most probably the measures have not been able to successfully counteract all impulses towards greater income inequality. Results from two studies on the pre Hu – Wei period point in this direction. Meng (2004) concludes based on analyzing household income data for 1988, 1995 and 1999 that unemployment and other effects of economic restructuring were the main contributors to the increase in the Gini coefficient for urban household income. Cai et al (2010) constructed a panel data at the provincial level for the period 1992 to 2003 and related measures of inequality to variables indicating SOE reform, urbanization and globalization. Those authors concluded that the SOE reform was the most significant factor contributing to the rise in urban inequality during the period studied.

To what extent have the restructuring affected men and women differently? Two ideal types describing how public policies in rich countries structure gender roles are the "bread winner model" and the "dual earner model". Urban China possesses several characteristics of the latter. During the planning époque, women worked for income to almost as high a degree as men. Earnings of employed women in urban China likewise have been on average almost at the same level as for men, and this did not changed much up to the first years of the new Millenium (see for example Gustafsson and Li, 2000, Demuger et al. 2007 and Chi and Li, 2008). However, there are signs of a rapid increase thereafter as Li and Song (in this volume) report. In the systems of social insurance in urban China, benefits are earned by being a worker, and not by being a caregiver. When income tax is assessed it is based on how much the individual worker earns, and household characteristics are not considered. In all aspects

[4] In our literature review we have come across very few attempts to analyze the target efficiency of the various policy measures introduced aiming to alleviating the consequences of job losses in urban China. Furthermore, there seems to be no research at trying to quantify how various measures might have affected individuals and households decision to stay out of the labor force due to the lessened negative income consequences due to the introduction of such measures. We can not rule out the possibility that one part of the drop in employment in urban China here reported is due to the introduction of policy measures aiming to alleviate the consequences of job losses.

[5] In 2008, the year after the period here studied did the Law of the People's Republic of China on Employment Contracts started to operate. It defines some categories of workers who are not to be first dismissed if the enterprise lay of workers. One example is the only employed in the family, another is workers with at least 15 years of seniority and who has at maximum five years left to the general retirement age.

the situation is similar to what can be found in the Nordic countries - prototypes for the dual earner model.

In other respects, however, the gender roles and the role of the family in urban China have elements of the bread winner model. Parents in urban China cannot count on heavily subsidized out of home child care or publicly funded and provided home care for the elderly, activities that otherwise tend to be women's unpaid work. Similar to the situation in the south of Europe, and different from that of the Nordic countries, adult children typically remain as a member of the parental household until they marry and become parents themselves. This means the existence of considerable inter-household transfers as well as sizable demand for care work within the urban Chinese household. It also means a strong demand for financial redistribution within the households, as typically it is the parents who pay bills for housing, food and education. In contrast, in Nordic countries where adult children form their own households shortly after ending secondary school, most living expenditures for students in tertiary education are funded by state loans and stipends to the students and there are no tuition fees - circumstances limiting the need for parental funding.

Women in urban China as elsewhere, particularly married women, can be assumed to structure their lives to meet expectations of performing care work and therefore do not seek full-time paid work during all phases of life (See Zhang et al 2008 and Maurer-Fazio et al., 2009). Working in the same direction, employers and potential employers can follow stereotypes and assume that female workers are less productive; therefore males are given preferred treatment regarding hiring or not laying off. From this background it is not surprising that during periods of restructuring, spells of unemployment have been longer for women than for men (Du and Dong, 2009). The same authors, in an effort to weight the relative importance of different factors leading to longer unemployment spells among women, conclude that structure and institutional factors played a more decisive role for such a gender disparity than gender differences in preferences. At the household level, the more rapid withdrawal from paid employment of middle-aged women than of men in urban China, has for some years led to a decrease in women's contribution to household income, thereby possibly weakening their bargaining power within the household, see Li et al (2006) for the period 1988 to 1999 and Li and Gustafsson (2008) for the period 1995 to 2002.

Finally we turn to the issue of spatial differences. It is well known that the process of restructuring has hit some locations in urban China, for example the north eastern part of the country, rather seriously resulting in many job losses while relatively few new jobs were created. In other locations, like the large metropolitan cities where also local governments have had more resources to combat employment problems, has the employment problems been of lesser magnitude when put in relation to the population size. Figure 1, which we have derived from our data described in the next section, illustrates that the dispersion in city employment rates widened remarkably from 1995 to 2002. It can also bee seen from the same data that this trend continued during the Hu – Wen leadership years here studied. The Gini coefficient computed for city employment rates stood at 0.031 in 1988 and 0.032 in 1995 but increased to 0.060 in 2002 and went further up to 0.093 in 2007.[6]

/Figure 1 about here/

[6] It should be an important task for future research to find out if this development can be found also in other data, this as the sampling strategy for sampling cities in the data we use was not identical across surveys.

3. Data and describing non-workers

Our data comes from the urban household surveys collected in the China Household Income Project (CHIP) for the years 1988, 1995, 2002 and 2007. While there are six years between the first three pairs of years there are four years between the last two years. We work with data collected in the same provinces for all four years: Beijing, Shanxi, Liaoning, Yunnan, Gansu, Jiangsu, Anhui, Henan, Hubei, Guangdong, Chongqing and Sichuan. These samples are sub-samples taken from the larger samples the National Bureau of Statistics use when collecting official household statistics for China that are published in the annual Statistical Yearbook of China. NBS also carried out the fieldwork. The target population for the samples is urban residents who are registered as such, and does not include rural to urban migrants lacking an urban registration. The samples we work with were collected in cities of various sizes, numbering 158 in 1988, 69 in 1995, 77 in 2002 and 219 in 2007.[7] Further details on the sampling procedures are provided in Eichen and Ming (1993) for the 1988 survey, Li et al (2008) for the 1995 and 2002 surveys and the Appendix to this book for details on the 2007 survey. To a large extent, the same or similar questions were included in all four surveys, but there are certain differences. For example, fewer questions on individual characteristics were put in the 2007 survey.

/Figures 2 – 3 about here/

Most of our analysis is focused on people aged 18 to 55 for women and 18 to 60 for men. This gives us samples of: 20 426 persons for 1988, 14 238 persons for 1995, 14 304 persons for 2002 and 13 808 persons for 2007. Applying the chosen definition of work active ages, we report that in 1988 only 6 percent were non-workers. However, the proportion had increased to 15 percent in 1995, to 29 percent in 2002, and to 36 percent in 2007. Much of the reduction in paid work takes place during the beginning and end of working life. Figure 2 illustrates the situation for young males for each of the four years. In 1988, 50 percent of an age cohort worked for pay at age 17, while it was at age 20 in 1995, and had further moved up to age 23 in 2002. However, between 2002 and 2007 the increases in the age at which 50 percent of an age cohort was employed were not more than one year, indicating retardation in the speed. This means that over the two decades we study, the average age for entering work went up by as much as seven years. The graphs for women (Figure 3) are rather similar to those of the men for all years under study.

/ Figures 4 and 5 about here /

Continuing to persons 30+ in Figures 4 and 5, we find many examples of a sizable reduction in employment rates from 1995 and thereafter. Reductions were first larger among women than among men. The development among older workers is particularly interesting. Although there are changes, they do not (as among young adults) represent a twenty-year trend. True, the age at which half of an age group had left employment, which can be labeled “the real retirement age” decreased from 1995 to 2002 by two years among men and women alike. However, in 2007 the real retirement age was back to age 61 for men and age 52 for women, almost identical to the ages in 1988.

To sum up what Figures 2 to 5 show: The increase in non-work in urban China from 1988 to 2007 consists of a considerably higher age at which young adults become economically active

[7] Following the practise of most use of CHIP data we are not using sample weights aiming to considering the fact that while sample sizes are more or less constant across provinces covered, population size is not.

in combination with a larger proportion of individuals in many age brackets (particularly women), not working. However, observed from 1988 to 2002, the movement towards a lower age when exiting the labor force, the real retirement age, was only a temporary, and not a long-run phenomenon. One can speculate that as the health of the Chinese population continues to improve, the age at which people exit the labor force will move up rather than down.

What kind of activities are people in work active ages who are not working, involved in? Focusing on the main activities as reported by respondents in the questionnaires we define the following states: early retired meaning that the person receives some kind of early retirement benefits and is not working, studying, unemployed and homemaker. The fifth state is a residual category including, for example, people who cannot work for temporary or permanent health reasons. The operational definitions can be found as a note to Table 1 in which we report the frequencies of the five categories for each of the four years under study.

/ Table 1 about here/

In Table 1 we see that in 1988 most of the non-workers belong to the residual category, while less than 1 percent of the population aged 18-55/60 belong to each of the other four categories. The continuous increases in the proportion students are particularly rapid, reaching 11 percent in 2007. The proportion unemployed increased rapidly between 1995 and 2002 after which it decreased but to a level higher than in 1995. The proportion early-retired rises to 4 percent in 2002.[8] While the proportion of respondents labeled as homemakers has continuously increased to be 7 percent in 2007. Thus measured in this way urban China saw no massive, but visible signs of re-emergence of traditional gender roles during the two decades studied here.

/ Table 2 about here /

In Table 2 we report the five rates of non-work for persons aged 18-29, 30-45 and 46 and older by gender for each year under study. Unsurprisingly students are totally concentrated to the youngest category which in 1995, 2002 and 2007 also has a relatively large proportion of unemployed persons. Also not surprising, there are no early-retired persons in the youngest age category any year under study. Shifting to persons aged 30-45 we find that in 1995, 2002 and 2007 unemployment is the most frequent state of non-work. In contrast, among those 46 and older we find unemployment to be only the third most frequent state. Instead, the residual category, followed by early retirement is the state with the highest proportion of non-workers for the years 1995, 2002 and 2007. From Table 2 we also learn somewhat predictably that the state of homemaker a predominantly female activity.

By convention, the unemployment rate is defined as the percentage of unemployed persons in the labor force, the latter defined as the sum of employed and unemployed. This means that the numbers of people who are not working for reasons other than unemployment do not affect the numerical value of the unemployment rate. Applying this definition to our data we find that in 1988 the Chinese urban unemployment rate is 0.4 percent, increases to 3.3 percent

[8] As questions on early retirement in the 2007 survey were not phrased identically to the corresponding questions used in previous surveys, it is difficult to judge whether the small reduction in the rate for this year as reported in the table is real or not.

in 1995 and jumps to 11.5 percent in 2002.[9] Thereafter has the unemployment rate gone down to 7.9 percent in 2007 a level more than twice as high as in 1995. This number is also twice as high as the registered unemployment rate which stood at 4.0 percent (NBS, Statistical Year Book) for the same year. An unemployment rate for urban China of 7.9 percent is within the range and slightly above the mean for unemployment rates observed the same year for OECD countries.[10]

/ Figure 6 about here/

/ Figure 7 about here/

Figure 6 shows unemployment rates for men by age and Figure 7 for women by age. We find that among middle-aged and older workers the unemployment rates for women are higher than for men. Commenting now on changes over time we find that unemployment rates increase in all age groups up to 2002. The highest unemployment rates are reported for young adults in 2002 and are as high as 22 percent for men and 34 percent for women. In contrast, the unemployment rate among people aged 46 + is not higher than 7 percent for men and 11 percent for women during the same year.

4. Processes leading to non-work.

In order to better understand factors leading to various states of non-work we have conducted statistical analyses concentrating on the situation in 1995, 2002 and 2007, years when the largest numbers of non-workers are observed.[11] We have split each of the samples into two; one sample with persons aged under 30 and the other with people aged 30 and above. This division is partly motivated by students being observed only among young adults in combination with no early-retired persons observed in the same age category. Furthermore, the processes leading to non-work can be assumed to be different in certain respects between young adults and others.

What kind of patterns do we expect to find? Starting with young adults we hypothesize the existence of intergenerational links in education so that the probability of being a student is positively related to parental education. Furthermore, we hypothesize that the activity of being a student is more probable in case the city employment rate is low. The probabilities of being student respectively unemployed are hypothesized to decrease by age. We do not expect to find clear gender differences in probabilities of being student respectively unemployed among young adults.

Among middle aged and older workers we expect to find a gender pattern meaning that being a female elevates the probability of being in all states of non work, and that such influences are the largest in 2002. Presence of children and of an elderly member can be supposed to elevate the probability of being a home maker. The education of the person is hypothesized to

[9] The number for the latter year is rather close to the 11.1 percent reported for the same year by Giles et al (2005) from samples of five large cities.

[10] http://www.oecd.org/dataoecd/30/61/44367840.pdf

[11] Using CHIP data for urban China 1988, 1995 and 2002 Liu (2009) has estimated probability models for belonging to the labour force (employed or unemployed). Furthermore, for persons belonging to the labour force she estimated probability models for being employed. The analysis presented in this section differs by defining different categories of not workers and by considering for example the employment rate in the city as explanatory variable. Furthermore we cover year 2007.

negative affect probabilities of belonging to various states of non work, particularly so in 2002, while the city employment rate is hypothesized to negatively affect the probability of belonging to various categories of non workers.

The statistical analysis consists of estimating multinomial Logit models with employed persons as the omitted category. For young adults we define three states of non-workers: student, unemployed and other, the latter possesses relatively few observations and includes a very small number of persons who have indicated that they are homemakers. Among people 30+ we define the four states of non-workers: unemployed, early-retired, homemaker and other. Some of the explanatory variables are the same for both samples: age, gender, and the employment rate in the city where the person resides, the latter computed from the data. In the analyses for young adults we also include the average years of education among parents as explanatory variables. The specification for persons aged 30+ includes one variable indicating the number of years of education of the person as well as one variable measuring the number of years of education of the spouse.[12] Furthermore there is one dummy indicating presence of child in the household and another indicating presence of a person aged 65 and older in the household. Table A1 in the Appendix present descriptive statistics for the variables used in the analysis of young adults and Table A2 variables used in the analysis of middle aged and older adults.

/ Table 3 about here/

Table 3 reports the estimates for young adults. We find that for all years studied the probability of being a student, as well as the probability of being unemployed, decreases as hypothesized by age of the person. Similar results are found in 2002 and 2007 for the probability of belonging to the category "others". There are no indications for any year that being a female affects the probability of belonging to any of the non-work categories. For all years under study we find not surprisingly that the employment rate in the city where the respondent resides negatively affects not only the probability of being unemployed, but also more interestingly that the probability of being a student as well as the probability of belonging to the residual category. As hypothesized we find that a long parental education increases the probability that the young adult is studying. There are also indications that in 1995 and 2002 parental education reduces the probability of being unemployed.

/ Figure 8 here/

Figure 8 illustrates some key findings as probabilities for young adults with given characteristics belonging to various states of non-work for each of the three years under study. The first panel shows the probability of studying. In 1995 this probability is 41 percent for a 20-year-old male having typical characteristics (person A) and if aged 23 goes down to 18 percent (person B). However, for 2007 these two predicted probabilities are as high as 75 percent and 44 percent. The figure also illustrates for a typical 20-year-old man how predicted probabilities vary by the city employment rate (panels C and D) as well as by parental education (persons E and F). Measured in this way, the variation due to parental education has a larger influence on the probability of studying than the variation in the city employment rate.

[12] Small numbers of households where there is no spouse are omitted from the statistical analysis.

The second panel in Figure 8 shows how age, parental education and city employment rate affect the probability of being unemployed for a typical man. Comparisons between 2002 and 2007 show a rapid decrease worthy of further comment as Figure 6 and Figure 7 show rapid increases in the unemployment probabilities between the same two years. The two very different pictures can be reconciled for the reason that the very rapid education expansion during the period led not only to a decrease in the number of employed young adults but also, and less rapidly, to a decrease in the number of unemployed young adults. The figure also illustrates substantial differences in probabilities of being unemployed due to employment in the city. Furthermore it can be noted in 1995 and 2002 that unemployment among men aged 20 was very much a matter of sons to parents with low educations.

/ Table 4 about here /

We now turn to the estimates for persons aged 30 to 55/60 as reported in Table 4. We find that some coefficients are estimated with high z-values for all states or almost all years under study. This is the case for the positive coefficients for being female and the negative coefficients for the city employment rate. This is also the case for the negative coefficient of own education. Coefficients for the variables females and own education are typically lower in the estimates based on 2007 data than in the estimates based on earlier data. In contrast, evidence of the length of spouse's education affecting states of non work is most clear in the 2007 data. Another clear result is that the presence of a child in the household elevates the probability of being a homemaker, while few effects of presence of an elderly person were found. Furthermore, for all years positive coefficients for the variable age were estimated with high z values regarding both the states early-retired and the residual category. [13]

/ Figure 9 about here/

Figure 9 illustrates some key results as probabilities for a 50-year-old man and woman with short and long years of education, for 1995, 2002 and 2007. It also illustrates the variation due to city employment rate. The first panel illustrates employment probabilities and shows a fall for women and low-educated more rapid than for men and high-educated between 1995 and 2002. While this period thus saw widened employment gaps between men and women and between short and low-educated, this development changed to the opposite between 2002 and 2007. In 2007 a short-educated women is predicted to have a clearly higher employment probability than in 2002, changes for long-educated women and short-educated males are rather small, while the employment probability for a long educated man actually is lower. Finally the figure shows that the spatial gap in employment probabilities, consistently with the descriptive results reported in Figure 1, has continuously widened.

The second panel in Figure 9 shows that probabilities for being unemployed among persons aged 50, are very low in 1995 but thereafter increase to become substantial for men and women with shorter educations, while they continue to be low for those with longer educations. The figure also shows that the expansion of unemployment had a very clear spatial character which ahd norowed in 2007. Compared to differences due to education and space, gender differences in probabilities of being unemployed are small. The main impression of the third panel of Figure 9 is that spatial differences in probabilities for being

[13] The coefficients indicate that age positively affects the state "homemaker" in 1995 and 2002, but negatively in 2007. One can speculate if this reflects that the label "homemaker" has changed over time, making it more socially acceptable than previously for middle-aged women to use this alternative in the questionnaire.

early-retired have increased over time, to become more important than gender and educational differences.

/Table 5 about here/

What have the changed employment patterns meant for gender roles? We address this question by looking at to what extent husbands and wives contribute to the earnings of the couple during the four years under study. Over time this can change not only due to changed employment patterns, but also due to changed patterns of remuneration and marriage. Table 5 shows a trend over the two decades under study which is in agreement with the studies we referred to in Section 2, studies that capture much, but not all of the period studied here. While for the beginning of the period three-fifths of couples' earnings were deemed to be equally earned by husbands and wives, the corresponding proportion had decreased to two-fifths in 2007. This development is mostly driven by larger proportions of wives earning less than their husbands, a development most rapid between 1995 and 2002. Compared to this, the accelerating increase in the proportion of wives having no earnings is of lesser importance, but still visible.

5. Economic well-being of non-workers.

In this section we analyze the economic well-being of non workers. For this purpose, and following what is the practice when analyzing the distribution of household income, we construct a variable disposable equivalent income for each household in our datasets by adding the personal income of all household members. We also add incomes received at the level of the household which include income of owner-occupied housing and social assistance (*Di Bao*). Taxes and transfers enter with a negative sign. In a second stage we divide this household income by number of persons in the household and arrive at the variable disposable household per capita income, which we assign to all household members. In this manner we obtain a variable defined for individuals of all ages, a variable which considers the economic situation in the household he or she is a member of. In the next stage we inspect how non-workers are represented in the different deciles of this variable in 1988, 1995, 2002 and 2007. Figure 10 shows that in addition to the levels having increased across surveys, the main difference is that the profile for 2002 deviates from those for all other years by being very clearly downward sloping. In 2002 non-workers were concentrated to the lower deciles. However, in 2007 the profile is again more horizontal. The increase in non-work thus has changed from a force towards greater inequality to the opposite. In order to better understand this finding we disaggregate non-workers into the five categories and report results in separate figures for each year.

/Figure 10 about here /

/Figure 11, Figure 12, Figure 13 and Figure 14 about here/

The main implication from Figure 11, 12, 13 and 14 are that while some categories of non-workers are rather evenly spread out over the distribution of household income, others are concentrated to the lower part. The increasingly larger category of students, is remarkably evenly represented in all deciles. Such a description also fits the residual category as well as the early-retired, though for the latter there is the exception that rather few are found in the

lowest decile. The other pattern is represented by the unemployed as well as by homemakers, two categories both disproportionally located in the lowest deciles. It thus appears as if the label “homemaker” to a large extent has functioned as an alternative to the category “unemployed”.

However, there are also differences across years to comment on. In 2002 as many as 57 percent of the unemployed and 59 percent of homemakers were located in the four lowest deciles while only 2 percent were in the top decile. During that year, average household disposable household income for homemakers amounted to only 66 percent of the average for the entire population, and to 68 percent among the unemployed (numbers calculated from Table 6). The concentration of the unemployed to the bottom of the income distributions was similar in 2007.

/ Table 6 about here/

The next stage of the analysis is to focus on personal income earned by employed and various categories of non-workers for 1995, 2002 and 2007. For this purpose we define personal income earned by males aged 18 to 60 and females aged 18 to 55. Means and measures of inequality for this variable together with the variable household per capita disposable income are reported in Table 6. Several comments can be made. The main finding is that unemployed, homemakers and students on average have low personal incomes, while this is not the case for early-retired and the residual category. Personal income among unemployed, homemakers and particularly students is rather unequally distributed. The mean values for personal income among unemployed and students are much lower than the disposable income for each of the categories. In contrast, employed persons on average have lower disposable income per capita than personal income. There is thus a considerable redistribution of income going on within the urban Chinese households, and as we will see, redistribution has increased across years. Note also that the negative difference between personal income and household per capita income among employed persons is, in an absolute as well as a relative sense, smaller than the corresponding positive difference among unemployed and students. This is because the number of workers is higher than the number of non-workers.

The rapidly increasing redistribution within households also appears in rather different developments over time through the Gini for personal income among people in work active ages and the Gini for household disposable per capita income among the entire population. The former increased rapidly from 0.27 in 1988 and 0.32 in 1995 to 0.37 in 2002 and finally to 0.46 in 2007, while the latter more or less stood still as the following numbers indicate: 0.23 for 1988, 0.33 for 1995, 0.31 for 2002 and 0.33 for 2007. Since 1995, impulses towards increased income inequality coming from the labor market in urban China have to a large extent been counteracted within the Chinese households. To reiterate: An important part of this story is that an ever larger proportion of young adults have no or only small personal incomes while they are studying or are unemployed and they live in their parental home supported by their working parents.

Some comments can be made on this result. One is that a proportion of the disposable income of parents co-residing with students is used for paying school fees and other educational expenditures, and thereby not available for other expenditures. Another comment is that this redistribution of income taking place within the household refers to an accounting period of

one year. Nevertheless, one can expect that the longer education attained by a number of young adults will bring them a relatively high personal income in the future. In this way can one expect that the increased levels of education among urban Chinese young adults will contribute to increased income inequality in the future.

/ Table 7 about here/

To further illustrate the importance of redistribution of income within the urban Chinese households, we illustrate in Table 7 the relation between personal income for adults and disposable household income by transition matrixes using deciles for each of the years 1995, 2002 and 2007. A rather low proportion of individuals in the first decile of personal income are also found in the lowest decile of disposable household income. In 1995 as well as in 2002 it is 35 percent, and it decreases to as few as 20 percent in 2007 indicating the increased importance of redistribution within the households. About half of the individuals in the top decile of the distribution of personal income are also in the same decile in the distribution of disposable per capita household income for both years under study. A rather low proportion, maximum 1 percent, of persons located in the top decile of personal income were located in the bottom decile of household disposable per capita income. This illustrates that in this sense, the redistribution of income within the household is more powerful in improving the lot of those with no or low personal income, than lowering the relative position of members with high personal income.

6. Conclusions

In this paper we have analyzed the growth of non-work among residents in urban China for 1988, 1995, 2002 and 2007 using surveys covering large parts of the country. The period between the last two years marks the first phase of the Hu – Wei leadership. We have reported employment rates by age and gender for each year. Furthermore, we have categorized non-workers into five states: students, unemployed, early-retired, homemakers and a residual category. We have estimated probability models relating labor market state to household variables and the city employment rate. Furthermore we have studied personal income and disposable income of non-workers and workers.

During the two decades investigated we have reported large changes when it comes to the age when a birth cohort starts to work. In 1988 at least 50 percent of the age cohort young men was working at age 17 and at age 18 for young women. However, the age of entering the labor force has continuously risen and was as high as age 24 in 2007. This means an increase of seven/six years during the two decades under study. We also reported that among those approaching age 30, as many as about one in five were not working in 2002 and 2007 while nothing similar was observed in 1988. These changes are driven by prolonged education as well as the unemployment school-leavers face before gaining a foothold in working life. Children of longer-educated parents study longer. It was also found that in cities with low employment, young adults are not only more likely to be unemployed, but also more likely to pursue studies.

Non-work has also increased in urban China among people aged 30 and older. A larger proportion of persons in such ages were not working for pay in 2007 compared to 1988. The heavy restructuring of the Chinese economy that took place from the mid-1990s until some

years thereafter, shows up in 2002 in lower real retirement ages, the age when leaving the labor force for good. However, as the process of laying off workers from SOEs leveled off together with larger numbers of people being employed in privately-owned firms, limited liability companies or self-employed, the real retirement age bounced back in 2007 to be about as high as in 1988.

The changed employment prospects among middle-aged and older workers have affected women and persons with shorter educations more than others. In 2002 non-work had the clearest gender and education profile, a profile that was considerably weaker in 2007. Parallel to this the dispersion in employment rates at the city level increased from 1995 to 2002, but even after that continued to increase. Our results show that a low city employment rate leads not only to higher probability of open unemployment, but also to higher probabilities for middle-aged and upper-middle-aged persons to be early retired, homemakers and belonging to the residual category of non-workers.

Turning to the issue of changed gender roles during the entire two decades here studied our results are mixed. On one hand among young adults we did not find any indication of young women being less likely to study than young men. On the other hand there are visible, but far from massive indications of a re-appearance of traditional housewives. This is one part in the story of Chinese views contribution less and males to the couples earnings. Another part of this story is the increased wage gap among employed workers (on more of this see Li and Song, in this book).

A major finding from this study is that much income loss due to non-work in urban China is absorbed within the household. This is consistent with findings reported in Gustafsson and Deng (in this book) who report that impulses from the labor market were not the main contributors to increase in income inequality at the household level during the first years of the Hu – Wei leadership. We have shown that for 1995, 2002 and 2007 the relationship between personal income and household disposable per capita income can be considered weak in urban China, and has become even weaker over time. Incomes foregone by an increasingly large number of students and young unemployed are to a large extent provided by parents who typically have above-average personal incomes. We have also reported that those who have left the labor force as early-retired are relatively evenly spaced over the distribution of household per capita income, with the exception of an underrepresentation in the lowest decile. However, it should be stated that in 2002 and in 2007 unemployed people, who were practically nonexistent in 1988 and were rather few in 1995, fared less well than other urban residents.

For policymakers who look upon increased inequality in household income in urban China as a problem, the bad news is that the larger number of unemployed persons in 2002 has clearly contributed to a more unequal distribution. The good news is that such impulses have grown weaker although the magnitude of the unemployment problem has not returned to the 1995 level. To round off we reiterate that the first phase of the Hu and Wen leadership has on the aspect of total number of jobs among registered residents in urban China seen a trend change and from this follows lessened forces toward more inequality. However, on other aspects more of continuity in trends toward more inequality appears. The dispersion in employment rates across cities has continued to increase. Wives share of couple's income has continued to decrease while the contributions by husbands have increased.

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Figure 1

City employment rates by deciles 1988, 1995, 2002 and 2007

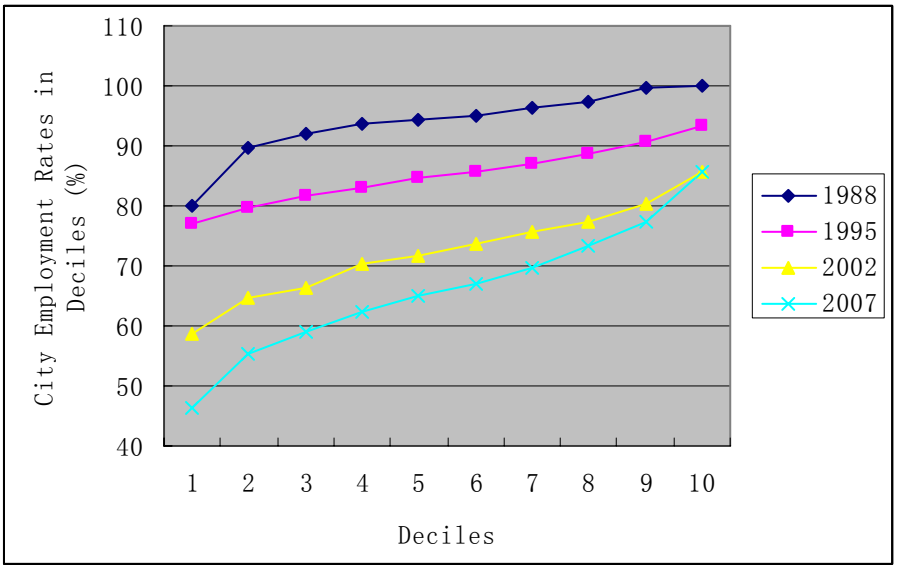
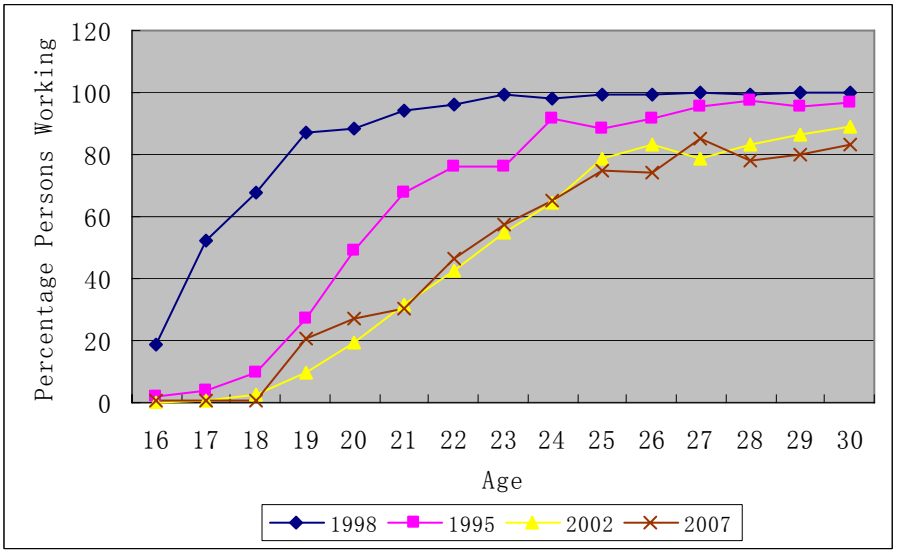


Figure 2

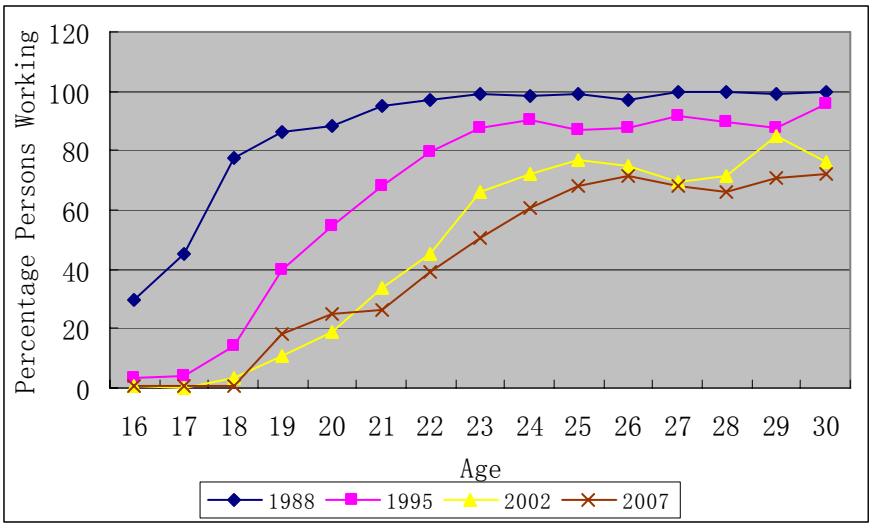
Percentage of workers by age among males aged 16 – 30, 1988, 1995, 2002 and 2007



Source: Authors calculations from CHIP

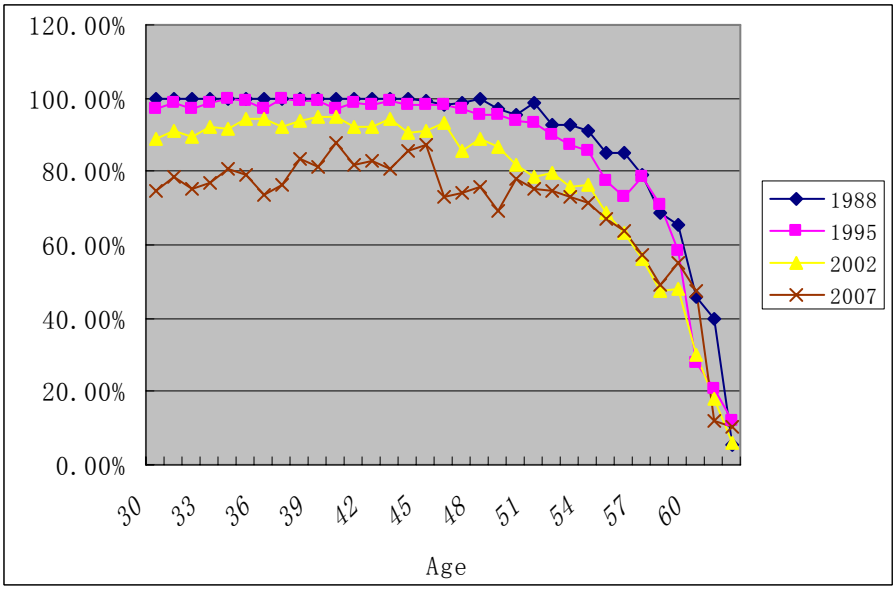
Figure 3

Percentage of workers by age among males aged 16 – 30, 1988, 1995, 2002 and 2007



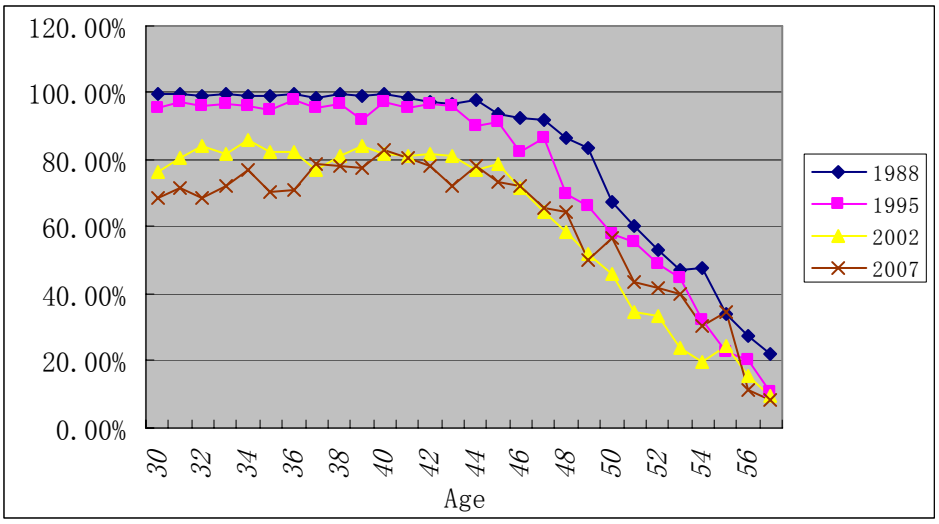
Source: Authors calculations from CHIP

Figure 4
Percentage of workers by age among males aged 30 – 62 1988, 1995, 2002 and 2007.



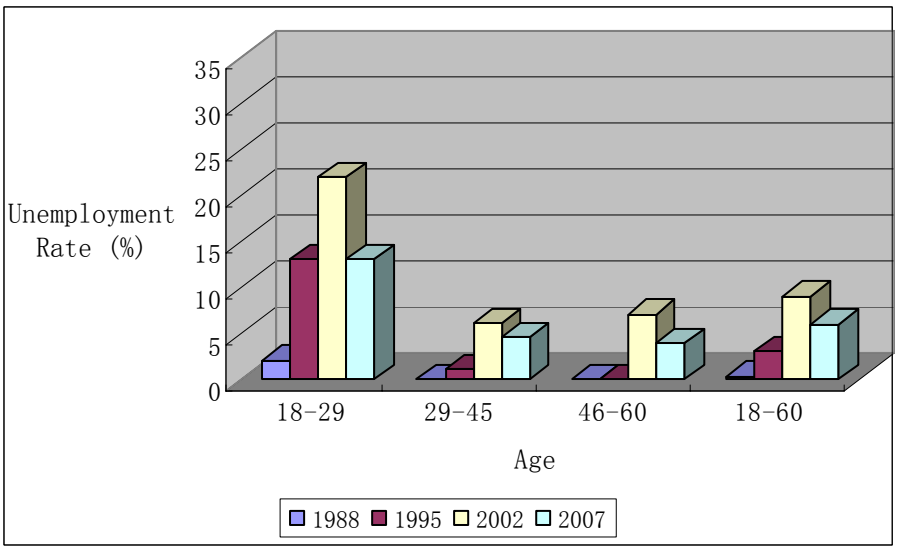
Source: Authors calculations from CHIP

Figure 5
Percentage of workers by age among females aged 41 – 57 1988, 1995, 2002 and 2007



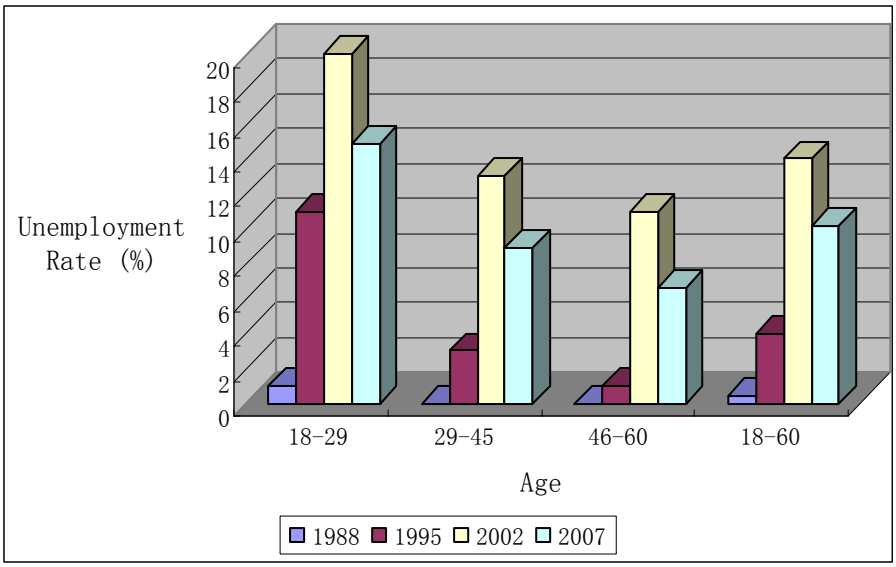
Source: Authors calculations from CHIP

Figure 6
Unemployment rates among men by age 1988, 1995, 2002 and 2007. Percent of the labor force.



Source: Authors calculations from CHIP

Figure 7
Unemployment rates among females by age 1988, 1995, 2002 and 2007, Percentage of the labour force.

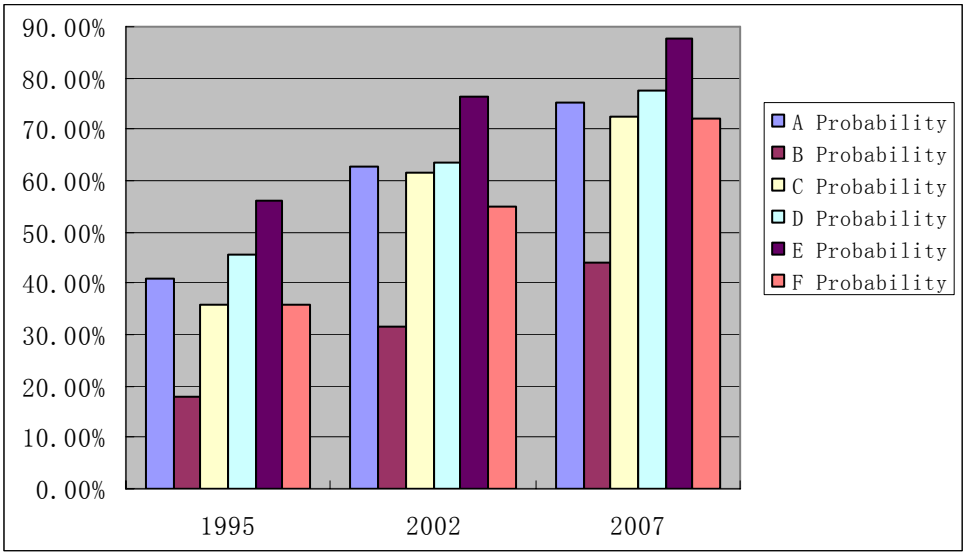


Source: Authors calculations from CHIP

Figure 8

Predicted probabilities for various states of non-work among persons aged 18 – 29, 1995, 2002 and 2007

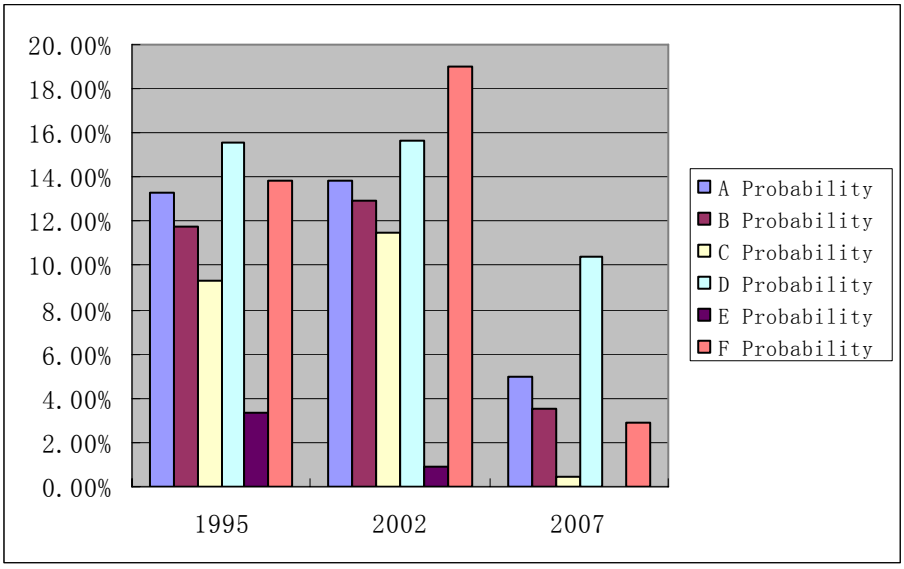
a) Probabilities of studying



Source: Table 4
Note: A is a male aged 20, living in a city with an employment rate at the sample mean and with parents with education at the sample mean.
B. Differs from person A by being aged 23.
C. Differs from person A by living in a city with an employment rate equal to that observed in the top decile the same year.
D. Differs from person A by living in a city with an employment rate equal to that observed in the bottom decile the same year.
E. Is equal to person C but education of parents is that observed in the top decile the same year.
F. Is equal to person C but education of parents is that observed in the bottom decile the same year.

b) probabilities of being unemployed

.



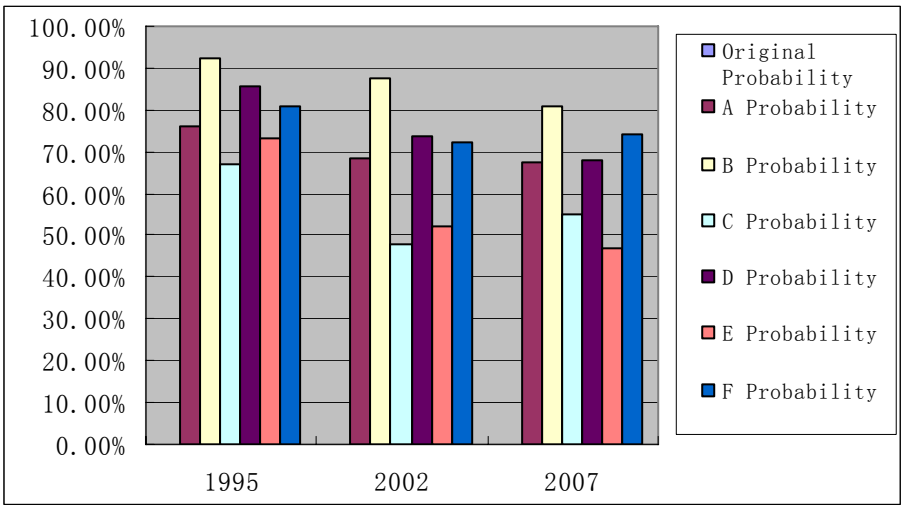
Note: A is a male aged 20, lives in a city with an employment rate at the sample mean and has parents with education at the sample mean.
B. Differs from person A by being aged 23.
C. Differs from person A by living in a city with an employment rate equal to that observed in the top decile the same year.
D. Differs from person A by living in a city with an employment rate equal to that observed in the bottom decile the same year.
E. Is equal to person C but education of parents belongs to that observed in the top decile the same year.
F. Is equal to person C but education of parents belongs to that observed in the bottom decile the same year.

Figure 9

Predicted probabilities for employment and various states of non work among persons aged 50 for 1995, 2002 and 2007

A female aged 50, with no children under age 14 or or elderly person (aged 65 or above) in her family , living in a city with the average employment rate, her education year is the mean value and her husband also has the average education year.

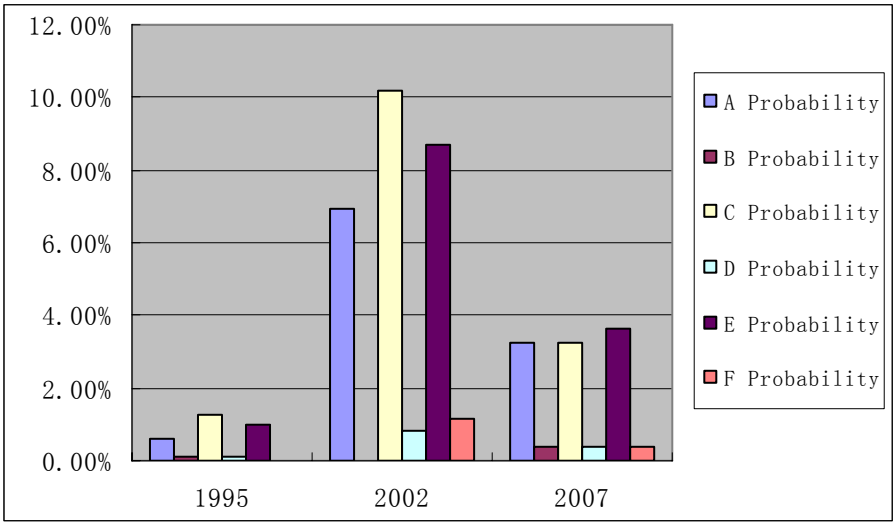
a. Probability of being employed



Source: Table 4

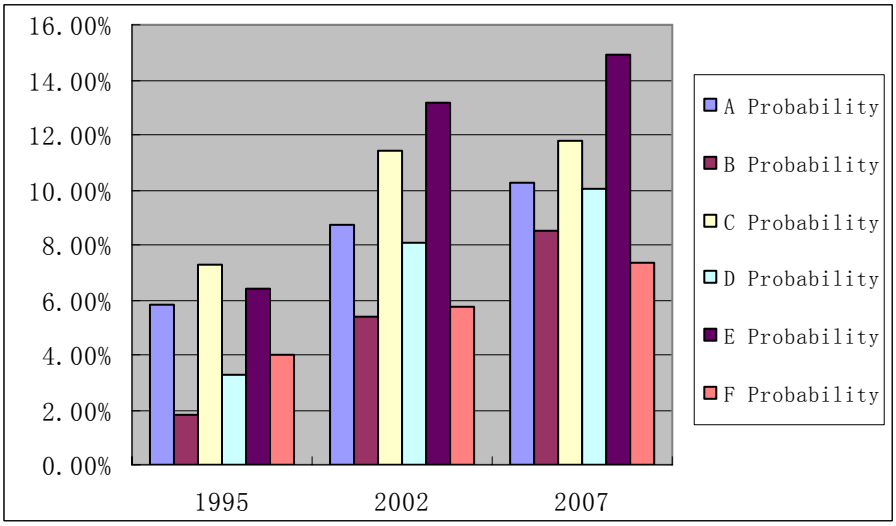
Note:
Person A is a male aged 50 with a short education. Person B is a male aged 50 having a long education. Person C is a female aged 50 having a short education. Person D is a female aged 50 having a long education. Person E is a female aged 50 with average education living in a city with a low employment rate (the bottom city employment rate deciles). Person F is same as E, but living in a city with a high employment rate (the top city employment rate deciles).

b. Probability of being unemployed



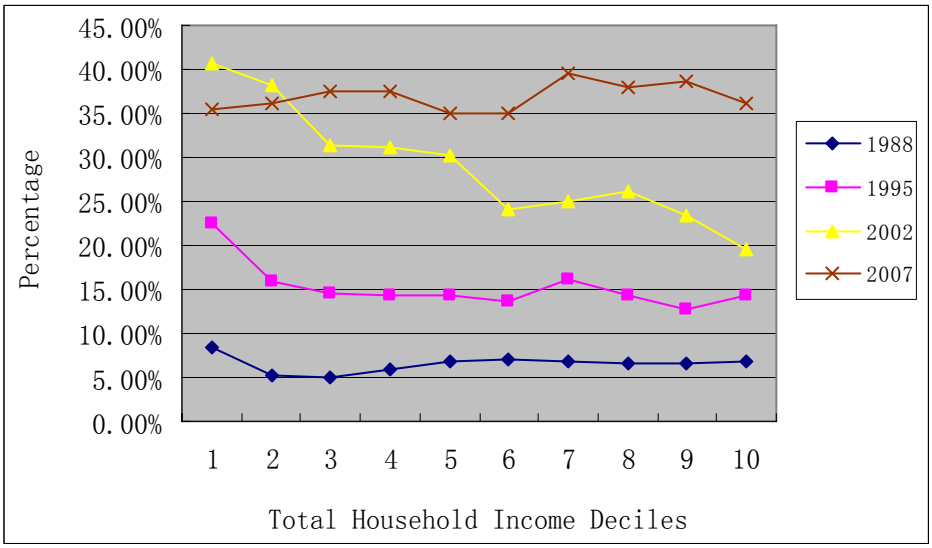
Note:
Person A is a male aged 50 with a short education. Person B is a male aged 50 having a long education. Person C is a female aged 50 having a short education. Person D is a female aged 50 having a long education. Person E is a female aged 50 with average education living in a city with a low employment rate (the bottom city employment rate deciles). Person F is same as E, but living in a city with a high employment rate (the top city employment rate deciles).

c. Probability of being early retired



Note:
Person A is a male aged 50 with a short education. Person B is a male aged 50 having a long education. Person C is a female aged 50 having a short education. Person D is a female aged 50 having a long education. Person E is a female aged 50 with average education living in a city with a low employment rate (the bottom city employment rate deciles). Person F is same as E but living in a city with a high employment rate (the top city employment rate deciles).

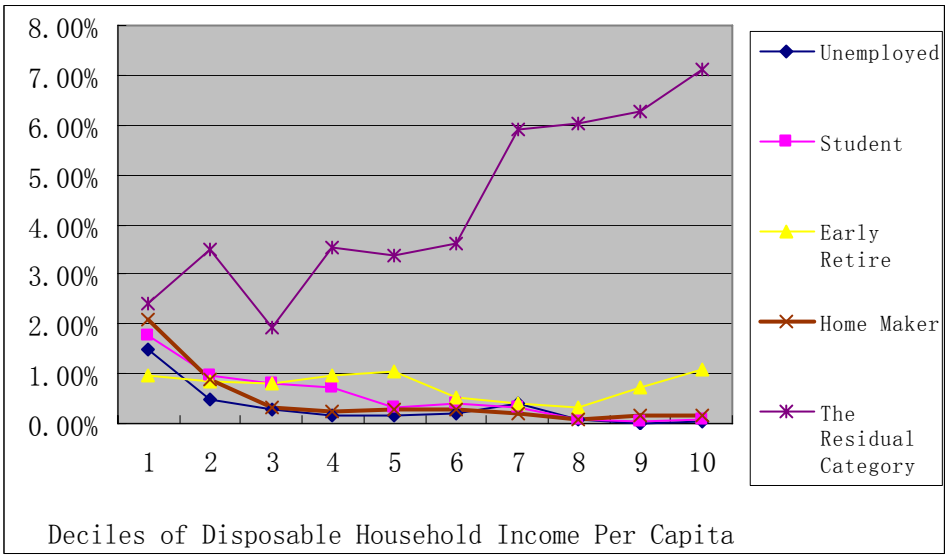
Figure 10
Percentages of non-workers in deciles of household income 1988, 1995, 2002 and 2007



Source: Authors calculations from CHIP

Figure 11

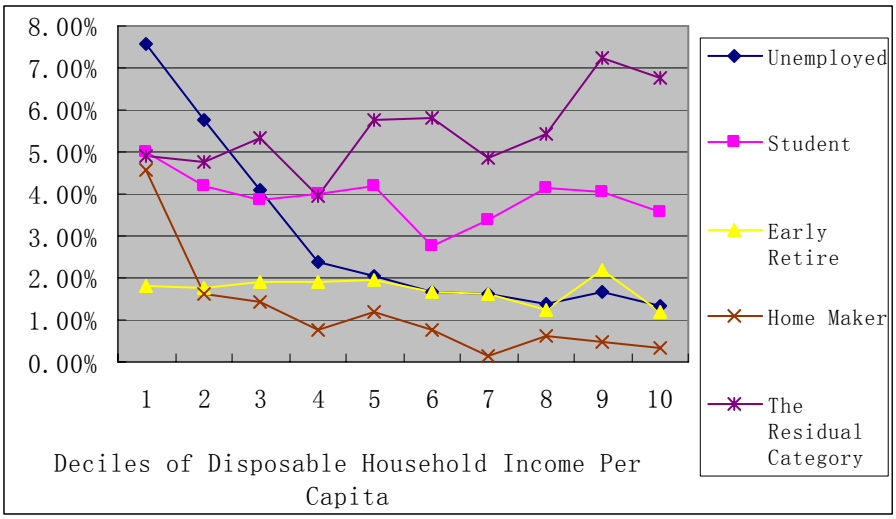
Percentage of various categories of non-workers in deciles of disposable household income per capita 1988



Source: Authors calculations from CHIP

Figure 12

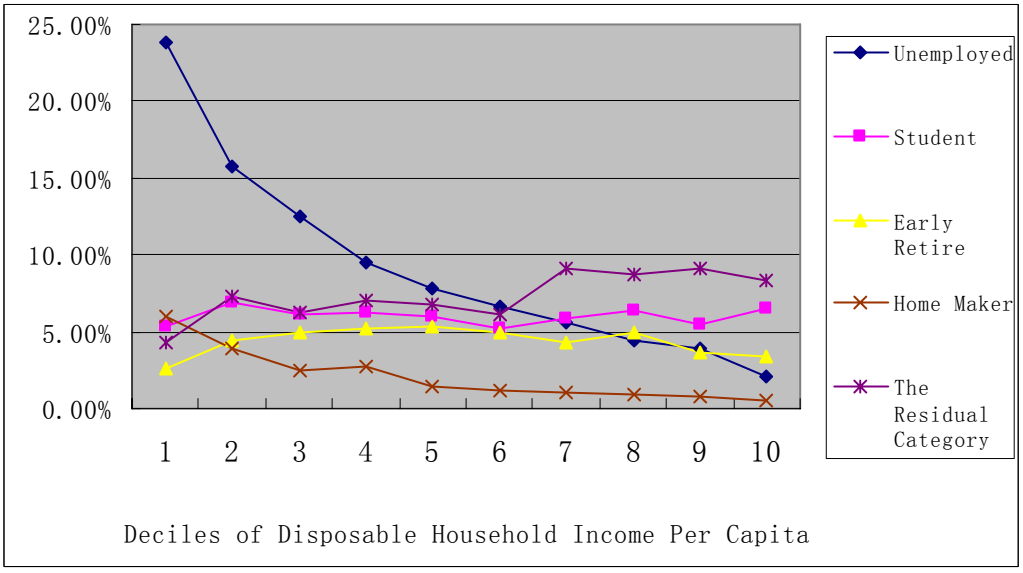
Percentage of various categories of non-workers in deciles of disposable household income per capita 1995



Source: Authors calculations from CHIP

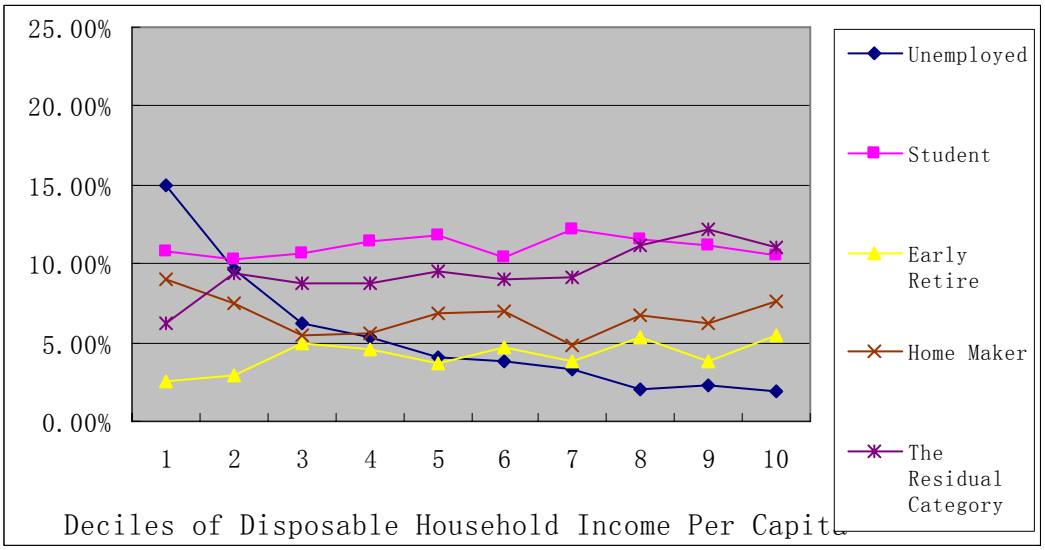
Figure 13

Percentage of various categories of non-workers in deciles of disposable household income per capita 2002



Source: Authors calculations from CHIP

Figure 14 Percentage of various categories of non-workers in deciles of disposable household income per capita 2007



Source: Authors calculations from CHIP

Table 1
Categories of non-workers 1988, 1995, 2002 and 2007, men 18 – 60 and women 18 – 55.

	1988		1995		2002			2007
	Proportion	Persons in the sample	Proportion	Persons in the sample	Proportion	Persons in the sample	Proportion	Persons in the sample
Early-retired	0.77	157	1.73	246	4.45	637	4.16	575
Unemployed	0.33	67	2.96	421	9.24	1322	5.38	743
Students	0.56	114	3.92	558	6.02	851	11.21	1548
Homemaker	0.48	97	1.19	170	2.11	302	6.67	921
Others	4.36	890	5.48	780	7.31	1045	9.47	1307
Total non-workers	6.50	1325	15.28	2175	29.06	4157	36.89	5094
Unemployment rate Defined as unemployed / (worker + unemployed)	0.38	17670	3.37	12484	11.53	11387	7.86	9457

Source: Authors calculations from CHIP

Note: In the surveys for 1988, 1995 and 2002 there are 10 alternative responses to a question on employment. We classify those who reported being employed as "employed", students as "students" and those who stated retirement and were aged 40 to 50 "early retired". Persons who indicated one of the three alternatives Ligang, laid-off and unemployed are classified as "unemployed". The residual category consists of all other non-workers.

In the 2007 survey there are 14 different alternative responses to the question of employment. We define "employed" as those who had indicated one of the six alternatives: work in state-owned unit, work in collective unit, self-employed or owner of private business, employee of private business, employed after having been retired and other employed. Those who communicated that they were students were classified as "students" together with persons with a undergraduate degree and were younger than 22, 23 and 25 but had indicated a status other than student. The motivation for this is that the Chinese term (Zai Xiao Xue Sheng) might be interpreted to refer to students at lower levels. People who had communicated homemaker were classified as "homemakers" together with those who were younger than 46, married and had indicated being retired. This is motivated by the fact that employed in state owned enterprises who started to work at age 16 needed to have a 30-year working career to be eligible for early retirement benefits and that people who were under age 46 in 2007 were unlikely to have been bought out with a lump sum from their work unit. Early-retired are persons who have indicated this alternative with the exception described above. People who indicated one of the three alternatives waiting for a job, unemployed and waiting for further studies were classified as unemployed. The residual category consists of all other non-workers and aged above 18 and below 40, not married and communicated that they were retired.

Table 2
Non-workers by category, age and gender 1988, 1995, 2002 and 2007.
Percent of persons in different age categories.

	1988		1995		2002		2007	
	Males	Females	Males	Females	Males	Females	Males	Females
18 – 29								
Students	2	2	20	18	31	29	36	31
Unemployed	1	1	10	9	17	14	6	8
Unemployment rate	1.27	1.05	11.98	10.87	33.77	22.19	11.16	15.29
Homemaker	0	0	0	0	0	0	3	6
Other non worker	1	1	2	3	3	6	6	12
Observations	2749	2954	1584	1667	1345	1430	2383	2267
30-45								
Unemployed	1	1	10	9	6	12	4	7
Unemployment rate	0	1.21	10.22	20.16	6.12	15.17	4.54	8.89
Early-retired	0	0	0	1	0	4	0	0
Homemaker	0	1	0	1	0	1	10	15
Other	0	0	0	1	1	2	1	1
Observations	4464	4891	3441	3770	3027	3393	2425	2608
46+								
Unemployed	0	0	0	1	6	6	3	3
Unemployment rate	0	0.06	0.26	0.88	6.78	11.08	3.82	6.65
Early-retired	2	4	4	9	9	13	12	16
Homemaker	0	2	0	7	0	6	0	3
Other	10	24	13	26	9	29	11	33
Observations	2904	1944	2235	1541	2861	2248	2304	1821

Source: Authors calculations from CHIP
Note: For definitions of various non-work states see Table 1.

Table 3
Determinants of various states of non-work among persons aged 18-29, 1995, 2002 and 2007

	Student		Unemployed		Others	
1995	Coefficient	z-value	Coefficient	z-value	Coefficient	z-value
Age of individual	-0.9120	-20.96	-0.2125	-7.62	-0.0084	-0.16
Gender (male=0; female=1)	-.21475	-1.60	-0.1316	-0.92	0.3873	1.30
Employment rate in the city	-0.0537	-3.48	-0.0595	-3.61	-0.0881	-2.59
Average education years of parents	0.1966	8.41	-0.0667	-2.91	-0.0672	-1.51
Constant	20.5350	12.84	8.6735	5.52	4.5860	1.42
Pseudo R^2	0.2499					
Number of observations	538		243		48	
2002						
Age of individual	-0.8155	-24.24	-0.1894	-7.33	-0.1730	-4.04
Gender (male=0; female=1)	-0.1651	-1.29	-0.0605	-0.46	0.0841	0.38
Employment rate in the city	-0.0197	-2.01	-0.0387	-3.98	-0.1093	-7.11
Average education years of parents	0.1602	6.08	-0.1078	-4.49	-0.0345	-0.84
Constant	17.4078	16.70	7.1015	7.24	9.4990	6.12
Pseudo R^2	0.2635					
Number of observations	865		325		95	
2007						
Age of individual	-0.8538	-20.95	-0.1811	-4.85	-0.4167	-4.99
Gender (male=0; female=1)	0.0476	0.29	0.1865	1.01	0.3603	0.81
Employment rate in the city	-0.0380	-3.74	-0.0534	-5.10	-0.0671	2.76
Average education years of parents	0.2320	5.89	-0.0547	-1.41	-0.1654	-1.76
Constant	19.1041	16.06	6.6879	5.39	12.1592	4.57
Pseudo R^2	0.3798					
Number of observations	716		150		22	

Source: Authors estimates from CHIP

Note:

The not to Table 1 defines the various categories with the exception that a rather small number of persons who had indicated home makers are included in the category "Other".

In the sample for 1995, 1 382 are employed, 538 are students, 243 unemployed and 48 belong to the residual category. The work sample of 2 211 is due to missing information for some variables smaller than the 3 251 who are in the sample.

In the sample for 2002, 948 are employed, 901 are students, 289 unemployed and 66 belong to the residual category. The work sample of 2 233 is due to missing information for some variables smaller than the 2 551 who were in the sample.

In the sample for 2007, 688 are employed, 716 are students, 150 are unemployed and 22 belong to the other category.

Table 4

Determinants of various states of non-work among persons aged 30-55/60, 1995, 2002 and 2007

	Unemployed		Early retired		Home maker		Others	
1995	Coefficient	z-value	Coefficient	z-value	Coefficient	z-value	Coefficient	z-value
Age	-0.0387	-1.74	0.1464	9.54	0.2377	11.35	0.4962	26.78
Female	0.7754	3.37	1.2395	7.24	4.1896	8.69	2.8774	17.07
Individual education years	-0.1841	-4.56	-0.1738	-7.03	-0.3557	-10.65	-0.1753	-8.81
The dummy for children in a household	0.7521	2.45	-0.9578	-4.24	0.6351	2.76	0.5049	3.01
The dummy for elderly people in a household	0.7552	2.48	-0.1277	-0.47	-0.6992	-1.58	-0.2517	-1.13
Education of spouse	-0.0127	0.32	0.0026	0.11	-0.0558	-1.83	-0.0091	-0.47
City employment rate	-0.0689	3.04	-0.0863	-5.34	-0.0668	-3.09	-0.0524	3.64
Constant	3.7368	1.68	-1.7970	-1.13	-9.2850	-4.21	-22.9430	-14.61
Pseudo R^2	0.3464							
Number of observations	98		225		130		495	
2002								
Age	-0.0105	-1.34	0.1727	17.80	0.1168	8.83	0.5803	31.43
Female	0.8721	10.31	1.3184	12.96	3.5678	12.75	4.0442	26.46
Individual education years	-0.1933	-12.77	-0.1505	-8.75	-0.3884	-17.07	-0.1954	-10.83
The dummy for children in a household	0.0980	0.92	-0.3867	-2.51	1.1940	7.05	0.1714	1.07
The dummy for elderly people in a household	0.3973	2.96	0.1198	0.69	-0.1006	-0.35	0.2611	1.38
Education of spouse	-0.0380	-2.62	-0.0231	-1.39	-0.0135	-0.58	-0.0083	-0.48
City employment rate	-0.0557	-10.35	-0.0809	-12.31	-0.0578	-6.24	-0.0598	-8.50

Constant	3.8625	6.95	-5.1028	-7.02	-7.3983	-6.74	-31.6521	-26.04
Pseudo R^2	0.2775							
Number of observations	764		608		251		831	
2007								
Age	0.0070	0.37	0.1074	8.02	-0.1987	-15.38	0.6514	17.55
Female	0.2896	1.10	0.6766	4.11	0.5758	3.58	3.6860	14.99
Individual education years	-0.1914	-4.44	-0.0804	-2.88	-0.0878	-2.92	-0.1671	-4.85
The dummy for children in a household	0.0009	0.01	-0.2945	-1.40	1.7062	8.86	0.1894	0.67
The dummy for elderly people in a household	0.0946	0.18	0.2220	0.70	0.4714	1.29	0.4556	1.22
Education of spouse	-0.0525	-1.19	-0.1380	-5.37	-0.1689	-5.93	-.0440	-1.38
City employment rate	-0.0618	-5.12	-0.0586	-7.45	-0.0671	-8.56	-0.0555	-5.67
Constant	2.3994	1.94	-1.8589	-2.16	12.8326	15.65	-32.2476	-15.27
Pseudo R^2	0.2919							
Number of observations	85		250		252		281	

Source: Authors estimates from CHIP
Note: the age is from 30 to 60 for males and 30 to 55 for females.
The not to Table 1 defines the various categories with the exception that a rather small number of persons who had indicated home makers are included in the category “Other”.
In the sample for 1995, 8 945 are employed, 98 are unemployed, 225 are early-retired, 130 are homemakers and 495 belong to the residual category. The work sample of 9 893 is due to missing information for some variables smaller than the 10 987 who are in the sample.
In the sample for 2002, 8 171 are employed, 764 are unemployed, 251 are early-retired, 608 are homemakers and 831 belong to the residual category. The work sample of 10 625 is due to missing information for some variables smaller than the 11 753 who are in the sample.
In the sample for 2007, 3 077 are employed, 236 are unemployed, 250 are early-retired, 101 are homemakers and 281 belong to the residual category.

Table 5
Economic dependency of women in urban China, 1988, 1995, 2002 and 2007 (aged 18-60 for males and aged 18-55 for females)

	1988	1995	2002	2007
Mean dependency	0.03	0.118	0.158	0.216
Woman has no earnings (%)	0.79	1.03	2.11	5.64
Woman earns less than man (%)	25.92	30.43	41.57	44.50
Equality in earnings (%)	63.09	60.93	46.47	42.60
Woman earns more than man (%)	10.99	8.64	11.96	9.06
Woman sole earner (%)	0.09	0.14	0.62	0.71

Source: Authors calculations from CHIP

Note: Equality is defined as each partner contributes between 40 and 60 percent of combined earnings.

Table 6

Personal income and household disposable per capita income among employed and various categories of non-workers 1995, 2002 and 2007. Means and Gini coefficients

	Employed	Unemployed	Student	Early-retired	Homemaker	Others	Total
1988							
Personal income	1459.38	736.45	798.56	1170.50	533.27	612.276	1251.265
Household per capita income	1881.90	1238.32	1339.72	1901.82	1263.53	2144.98	1885.48
Gini index of personal income	0.2462	0.2754	0.2617	0.2709	0.5529	0.6747	0.2765
Gini index of household per capita income	0.2241	0.2275	0.2005	0.2572	0.2489	0.2255	0.2272
1995							
Personal income	6661.21	2932.68	749.82	4884.47	1268.19	5257.98	6453.37
Household per capita income	5841.37	4102.38	5653.37	5335.83	4555.096	6243.18	5780.498
Gini index of personal income	0.3092	0.5301	0.7993	0.3237	0.5765	0.3083	0.3198
Gini index of household	0.3243	0.3419	0.3431	0.2971	0.4634	0.3445	0.3299

per capita income							
2002							
Personal income	12100.35	3770.688	1647.229	8384.427	1952.068	8820.957	11011.47
Household per capita income	9156.002	5968.182	8721.782	8326.185	5730.145	9309.497	8739.749
Gini index of personal income	0.3474	0.5649	0.7143	0.3114	0.6839	0.3008	0.3749
Gini index of household per capita income	0.3076	0.3024	0.3091	0.2702	0.3127	0.2885	0.3119
2007							
Personal income	22282.96	3074.35	10894.9	16364.04	13878.14	14199.28	18400.41
Household per capita income	18521.44	12355.44	18358.65	20138.47	18276.26	19557.9	18323.08
Gini index of personal income	0.3790	0.7572	0.7731	0.3251	0.4795	0.3970	0.4630
Gini index of household per capita income	0.3274	0.3497	0.3247	0.3334	0.3530	0.3151	0.3323

Source: Authors calculations from CHIP
Note: the indices are all for the ages 18-55 for females and 18-60 for males. Number of observations: 20 426 in 1988; 14 238 in 1995; 14 304 in 2002; 13 808 in 2007.
The students who were in tertiary education in 1988 could have received subsidies month. To some extent, the subsidies are generous.

Table 7
Adult persons by deciles of personal income and household per capita disposable income, 1988, 1995, 2002 and 2007.

Characteristic of individual Decile of personal income	Decile of per capita income										Total
1988	1	2	3	4	5	6	7	8	9	10	
1	22.06	15.33	11.43	9.45	9.56	7.98	7.81	6.84	6.33	3.22	100
2	19.74	14.38	11.05	10.07	8.63	6.62	8.92	9.49	6.96	4.14	100
3	15.5	15.17	14.05	12.65	9.23	7.67	8.28	7.61	6.66	3.19	100
4	10.76	13.05	13.45	13.28	11.91	10.82	7.73	7.73	6.93	4.35	100
5	9.98	10.5	12.92	12.57	12.63	12.28	9.63	8.07	6.34	5.07	100
6	7.34	10.83	9.74	12.44	11.92	12.78	10.66	9.17	7.45	7.68	100
7	6.31	7.91	10.24	11.32	12.06	13.37	13.03	9.8	9.78	6.09	100
8	4.15	6.16	7.49	9.5	10.25	12.44	13.59	12.96	12.56	10.89	100
9	3.19	4.67	6.61	5.93	8.66	9.34	12.54	15.38	18.58	15.1	100
10	0.87	2.00	3.00	2.79	5.15	6.7	7.81	12.93	18.41	40.27	100
Total	100	100	100	100	100	100	100	100	100	100	
Number of observations	2043	2038	2038	2038	2039	2041	2038	2041	2038	2038	20392
1995											
1	33.66	17.8	11.03	8.67	7.09	4.76	5.35	4.22	3.85	3.62	100
2	25.89	18.93	13.66	10.32	8.24	8.46	5.43	3.62	3.02	2.42	100
3	17.51	20.02	14.8	11.71	10.43	8.61	5.06	5.73	3.85	2.27	.100
4	7.92	17.19	17.42	15.15	11.94	9.59	8.53	5.96	4.38	1.96	.100
5	6.57	11.16	15.11	16.88	14.36	10.42	8.45	7.69	5.28	3.93	.100
6	3.77	6.41	12.24	14.85	15.95	14.73	13.06	8.07	6.94	4.16	100
7	2.04	5.13	8.08	10.4	14.36	17.82	14.19	12.52	10.11	5.22	100
8	1.96	1.81	4.46	7.54	9.45	14.27	19.02	19.91	14.87	6.88	100
9	0.53	1.28	2.72	3.84	5.9	8.92	15.65	19.31	21.92	19.88	100
10	0.15	0.3	0.45	0.68	2.27	2.42	5.28	12.97	25.81	49.66	100
Total	100	100	100	100	100	100	100	100	100	100	
Number of observations	1325	1326	1324	1327	1323	1324	1325	1326	1325	1323	13248.
2002	1	2	3	4	5	6	7	8	9	10	.
1	33.55	17.22	12.94	9.09	7.93	5.38	5.3	2.9	3.21	2.48	100
2	28.25	20.76	15.51	9.9	7.32	5.86	4.5	3.62	2.97	1.31	100
3	15.09	18.66	14.79	14.88	10.61	8.27	6.59	5.96	3.68	1.47	.100
4	9.31	15.71	16.69	16.84	12.87	8.74	7.94	5.99	3.89	2.02	.100
5	6.66	11.58	14.31	14.64	13.34	11.89	11.57	7.73	5.46	2.82	.100
6	3.25	6.66	9.83	13.31	16.04	15.89	12.18	10.44	8.17	4.23	100
7	1.54	4.71	6.68	10.11	12.6	17.4	14.74	15.51	10.45	6.26	100
8	0.8	2.98	5.14	6.76	10.69	13.33	18.07	15.29	16.63	10.3	100
9	0.56	0.78	2.42	3.12	5.77	10.52	13.8	20.5	23.62	18.91	100
10	1	0.91	1.58	1.26	2.74	2.66	5.31	12.03	22.06	50.45	100
Total	100	100	100	100	100	100	100	100	100	100	
Number of	1246	1243	1244	1243	1244	1245	1245	1242	1245	1243	12440

observations											
2007	1	2	3	4	5	6	7	8	9	10	
1	18.45	16.19	11.5	11.66	9.95	7.06	8.85	6.38	5.69	4.25	100
2	36.35	19	12.05	7.52	6.63	5.01	3.96	4.47	2.67	2.34	100
3	19.27	19.5	16.16	13.05	9.64	8.45	5.63	4.88	2.53	0.89	100
4	12.27	14.41	17.89	14.65	11.6	10.72	7.02	6.4	3.77	1.27	100
5	7.65	12.72	14.36	13.73	14.72	10.58	9.89	7.15	6.02	3.2	100
6	4.01	8.71	11.83	14.15	12.27	13.99	12.41	10.87	8.03	3.69	100
7	1.86	5.23	8.36	11.58	14.71	15.98	13.44	13.31	10.53	5.08	100
8	0.3	3.19	4.91	8.33	11.88	14.23	15.86	15.78	16.65	8.85	100
9	0.07	0.82	2.23	4.39	6.98	10.88	15.69	19.42	19.85	19.57	100
10	0.15	0.23	0.53	0.76	1.44	2.95	7.26	11.54	24.26	50.87	100
Total	100	100	100	100	100	100	100	100	100	100	
Number of observations	1346	1344	1344	1345	1347	1342	1345	1345	1345	1342	13808

Source: Authors calculations from CHIP

Appendix

Table 1 Descriptive statistics for sample of young adults 1995, 2002 and 2007

	Employed	Unemployed	Student	Others
1995				
Age of individual	23.11	21.67	19.18	22.93
Female (%)	46.89	46.09	48.70	51.16
Employment rate in the city	84.16	83.23	84.09	82.25
Average education years of parents	9.61	8.79	10.69	8.77
Observations	1382	243	538	48
2002				
Age of individual	24.04	22.83	19.80	22.93
Female (%)	48.52	48.92	47.63	49.44
Employment rate in the city	70.67	69.05	70.17	65.20
Average education years of parents	9.64	8.86	10.5	9.54
Observations	948	325	865	95
2007				
Age of individual	25.42	24.4	20.25	22.82
Female (%)	46.66	50.0	47.91	54.55
Employment rate in the city	62.01	58.04	60.21	57.15
Average education years of parents	10.71	10.44	11.84	9.91
Observations	688	150	716	22

Source: Authors calculations from CHIP

Table 2. Descriptive statistics for sample of middle aged and older workers 1995, 2002 and 2007

	Employed	Unemployed	Early Retired	Home maker	Others
1995					
Age	41.54	38.83	48.22	47.95	53.76
Female	46.65	69.39	66.67	96.15	64.24
Individual education years	10.62	9.0	8.65	6.18	8.55
The dummy for children in a household	58.54	78.57	13.33	31.54	17.78
The dummy for elderly people in a household	6.83	13.27	7.11	4.62	7.68
Education of spouse	10.47	9.89	9.74	8.72	9.57
City employment rate	85.12	83.76	83.19	83.26	83.56
Observations	8945	98	225	130	495
2002					
Age	42.74	42.23	49.23	44.80	53.50
Female	42.69	61.40	56.41	94.02	71.12
Individual education years	11.23	9.60	9.55	7.31	9.20
The dummy for children in a	39.90	39.27	9.38	40.24	12.88

household					
The dummy for elderly people in a household	6.77	9.82	7.07	5.98	7.46
Education of spouse	10.94	9.98	9.80	9.61	9.89
City employment rate	71.77	69.09	67.96	69.59	69.52
Observations	8171	764	608	251	831
2007					
Age	44.85	45.8	49.82	38.44	55.34
Female （%）	25.74	25.88	26.40	34.13	45.55
Individual education years	12.22	10.38	10.68	11.15	10.21
There is at least a child in a household (%)	30.55	27.06	13.20	17.46	10.68
There is at least an elderly people in a household (%)	3.64	4.71	5.20	3.97	4.98
Education of spouse	11.85	10.58	9.94	10.46	10.19
City employment rate	61.29	56.00	56.93	54.91	58.44
Observations	3077	85	250	252	281

Source: Authors calculations from CHIP

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