# UNEMPLOYMENT, INCOME INEQUALITY, AND CONSUMPTION SMOOTHING IN URBAN CHINA

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# 1
# INTRODUCTION

Economic shocks, let them be normal business cycles, financial crises, or economic restructuring, happen all the time, especially in a developing world. During recent Asian Crises one has observed enough individuals and households who experienced difficult periods. Some of them even permanently fell into unemployment and a poverty trap. Every shock may enlarge income inequality in a society. Unlike developed countries, most developing economies do not have financial power to redistribute income. In addition, they may not reach the stage where they can sacrifice efficiency for equality. As a result, how to deal with an income inequality problem, and how to better help the individuals and households most severely affected to pull through is often a very important policy issue for developing countries.

Urban unemployment has become one of the most important social economic problems in China since the middle of 1990s. Due to soft budget constraints and other property rights related problems the Chinese state sector has been performing badly. In 1995-1996, around 50 per cent of enterprises were making losses. To vitalise the Chinese economy the policy of radical reform in the state enterprises was introduced. As a result of this policy many small and median size loss making state enterprises were bankrupted. Those which survived started to take efficiency measures seriously. These two forces led to large-scale retrenchments. Over the last 4 years around 15 to 27 million state sector workers have been made redundant.

Such large-scale involuntary job losses are bound to have some serious economic, social, and political implications. Most importantly it has generated a serious income inequality problem. This is so because a sudden increase in unemployment pushes a large group of people into the lower end of income distribution at the same time when lower end of the income is decreasing. These effects enlarge the income gap between the employed and unemployed. In addition, involuntary job losses may also have different effects on individuals within the unemployed group. For example, those layoff workers who are young, educated, and energetic may easily find better paid jobs somewhere else in the economy or set up their own business, while those who are older or less skilled may fall into long term unemployment or accept jobs in the lower paid informal sector. Those whose family members are employed may find it easier to cushion the effect of income reduction than those

whose family members are also unemployed. Those who live in developed and dynamic regions may easily find other jobs while those who live in less developed regions may become long term unemployed.

Thus, the diversity between employed and unemployed and within the unemployed group may be considerable. This diversity will contribute significantly to income inequality in urban China. In developed economies, a government normally uses various income redistribution channels to solve the problem of income inequality. Putting aside the negative effect of such redistribution measures on economic efficiency, China in its current economic situation cannot afford a generous income support scheme. However, such an across-the-board scheme may not be needed. For example, according to the "permanent income" hypothesis most individuals can smooth their consumption by saving more during the good times and spending some of early savings during the difficult periods. In addition, traditional Eastern value of within family income transfers may also provide a channel for retrenched workers to tide over the difficult period. Perhaps, not all unemployed workers but those whose income reduction cannot be cushioned within the households should be helped. Perhaps, providing trainings to retrenched workers and providing incentives for self-employment are more suitable policy alternatives to income support. Perhaps, providing education subsidies to children of unemployed workers is a more efficient way to prevent further increase in income inequality in the next generation.

To date, very little empirical work has been conducted to investigate the impact of urban involuntary job losses on urban income inequality and how retrenched workers pull through their difficulties. This is mainly because relevant data are none existent.

To enhance our understanding of the issues, a major household employment, income and expenditure survey was conducted. During the period of February to May 2000, the Institute of Economics, Chinese Academy of Social Sciences with the help of the State Statistical Bureau conducted a comprehensive survey. The survey covers 6 provinces: Beijing, Liaoning, Jiangsu, Henan, Sichan, and Gansu. Around 4500 urban households were interviewed. The survey questionnaires cover a wide range of information concerning individual and household income, expenditure, employment and unemployment status, and other demographic features. This survey, together with a comparable household survey conducted in 1995 serve as the main source of information for this study.

This study aims to contribute to our understanding of the following important issues related to the involuntary retrenchment: (1) To what extent has involuntary retrenchment increased income inequality in urban China; (2) Who are the most vulnerable people in the process of economic restructuring. (3) how do different individuals cope with the unemployment experience. And (4) what kind of policy alternatives are available to help retrenched workers through this difficult period.

The report is organised as follows. The next chapter introduces the background of the significant economic restructuring happened in the late 1990s in urban China, the scale of the urban unemployment, and the change in government policy towards urban unemployed individuals. Chapter 3 investigates how has the large scale unemployment in urban China increased income inequality. Chapter 4 identifies the most vulnerable group in the process of economic restructuring. Chapter 5 examines whether and how households with unemployed members cope with the income shocks brought about by their unemployment experience. Conclusion and policy implications are given in Chapter 6. Most of the main chapters are self-contained academic papers.

# 2
# UNEMPLOYMENT AND GOVERNMENT POLICIES

## 2.1. Introduction

Large-scale urban unemployment had never been an issue in China before the radical economic reform initiated in the mid-1990s.[1] Official unemployment figure has never exceeded 5.5 per cent over the last half century.

Since the mid-1990s, however, unemployment has become the most important economic issue that affects social and political stability. Before the 1990s, although China successfully achieved high economic growth while avoiding direct factor market reform and radical state sector reform, accumulated redundant workers within the state enterprises were said to be amounted to more than 30 per cent of the total labour force. Due to the large scale hidden unemployment, together with soft budget constraints and other property rights related problems the Chinese state sector has been performing badly. By 1995-1996, around 50 per cent of enterprises were making losses. To vitalise the Chinese economy the policy of radical reform in the state enterprises was introduced, first on trial in 1993 and finally launched in 1997 (East Asia Analytical Unit, 1997; Appleton, Knight, Song, and Xia, 2001).

As a result of this policy many small and median size loss making state enterprises were bankrupted. Those which survived started to take efficiency measures seriously. These two forces led to large-scale retrenchments (layoff or 'Xiagang' in Chinese).

Xiagang differs from official unemployment in the sense that workers who have lost a job still keep an employment relation with the enterprises they used to work for. They still receive housing, medical, and other benefits from the enterprises, and the enterprises are still obliged to pay their living allowance and their work related insurances, such as medical, unemployment, and pension insurances. In addition, once jobs become available they will be re-employed.[2]

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[1] There were two exceptional periods: the period after the Great Leap Forward and that after the Cultural Revolution (see Chen and Yu, 1993; Feng, 1982; White, 1988; Meng 2000).

[2] For those whose original enterprises were bankrupted, they receive various benefits from a re-employment centre set up by local governments. All layoff workers are free to find jobs somewhere else. As long as one is not officially known as being re-employed one is entitled to all the benefits from the enterprises. This is probably why most layoff workers are not keen to reveal their current employment status.

In addition to the state sector layoff workers, many of state sector workers who are close to retirement age have chosen to take early retirement as retirement pension is somewhat higher than living allowances provided to layoff workers. Furthermore, employees who lost jobs from the collective or various forms of private enterprises are not counted as layoff workers. Together with the urban labour market new entrance who are unable to find jobs they form the group of official unemployment. This group does not enjoy the benefits provided to the layoff workers. They have to register with the government unemployment centres to receive unemployment benefit.

Chinese official unemployment figures only accounted for those who formally register with the unemployment centre. In this study we choose to use a more broader definition of unemployment, which includes (1) official unemployment; (2) layoff workers; and (3) early retirement.

## 2.2. Scale of urban unemployment

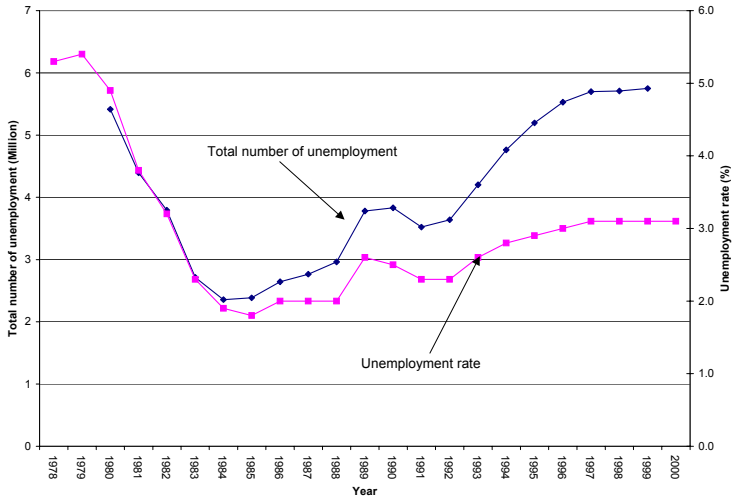
Chinese official urban unemployment figure only includes those who are registered with the local government unemployment centres. This figure amounted to 5.75 million in 1999, which accounted for 3.1 per cent of the total urban labour force. Figure 2.1 presents the official urban unemployment (left-hand scale) and unemployment rate (right-hand scale). It indicates that in the late 1990s the urban official unemployment rate is at its highest position since 1983.[3]

The official unemployment figures, however, only include very limited number of the state sector layoff workers. To estimate the scale of urban layoff workers is not an easy task. This is so partly because it is difficult to collect accurate data and partly because the unwillingness of the government to release such data. Below we report some relevant information from the scraps of official information on layoff workers since 1995.

1995. China Labour Statistical Yearbook 1996 reports that there were 6.57 millions of surplus workers in urban areas at the end of 1995 (p409), of which about 5.64 million were layoff workers (p409). Among layoff workers, over 65% came from state-owned enterprises, and 32% from urban collective enterprises.

[3] The high urban unemployment rate in the early 1980s is entirely due to return 'intercellular youth' from the countryside after the Culture Revolution (see Feng, 1982; White, 1983).

**Figure 2.1** Official unemployment and unemployment rate




**Source**: DX data base.

1996. The Ministry of Labour and Social Security (MOLSS) *1996 Annual Statistical Report* reports that at the end of 1996, there were total of 8.15 million layoff workers.

1997. MOLSS *1997 Annual Statistical Report* indicates that there were 11.51 million layoff workers at the end of 1997, of which 6.34 millions were from state-owned enterprises.

1998. MOLSS *1998 Annual Statistical Report* shows that there were 8.92 million layoff workers at the end of 1998, of which 6.10 millions from state-owned enterprises.

1999. MOLSS *1999 Annual Statistical Report* suggests that at the end of 1999 there were 6.52 million layoff workers.

2000. The same MOLSS report for the first half of 2000 presents that at the end of June 2000, there were totally 6.77 million layoff workers. Among them 1.96 million are new layoffs in this period.

These official figures seem to be low. For example, the China Labour Statistical Yearbook 1999 reports not only number of layoff workers, but also number of not-on-post workers at the end of 1998. The former is reported to be 8.77 millions (p442) (which is slightly lower than the figure reported in the MOLSS report), and the latter is 19.77 millions, including 3.36 millions of early retirees (p205). Even without including the early retirees the figure of not-on-post workers is still 87% higher than the number of layoff workers. One reason for this difference may be that definition of not-on-post workers is broader than that of layoff workers, the former including both layoff workers with and without temporary jobs and the latter only includes those without temporary jobs.

Several non-official estimates are available. Appleton, Knight, Song, and Xia (2001) notice that there was a sharp fall in urban employment figure by 27.7 million over the period of the radical reform (from 148.5 million at the end of 1996 to 119 million in the mid-2000). They indicate that this may imply that the number of accumulated layoff workers is related to this figure. Fan (2000) estimated a 15 million accumulated layoff workers at the end of 1999. His figure is also substantially higher than the figure provided by the MOLSS.

The household survey conducted by the Institute of Economics, Chinese Academy of Social Sciences for the purpose of this study includes two questions on employment status. One asks individuals about their current employment status (at the time of survey, year 2000), and the other inquires whether the individual has experienced unemployment during 1999. Table 2.1 presents the statistics of the first question. It indicates that if we include early retirees, layoff workers, as well as registered unemployment, the total unemployment rate reached 24 per cent of the total labour force. Excluding early retirement the total unemployment accounted for 17 per cent of the total labour force (not including retirees). The data from the second question suggest that in 1999 around 17 per cent of the total labour force (not including retirees) experienced unemployment, which is consistent with the information derived from the first question.

**Figure 2.1** Employment and unemployment in 2000

| | Frequency | Percentage |
|---|---|---|
| Employed | 6215 | 76.05 |
| Total unemployment | 1957 | 23.95 |
| Of which: early retirement | 677 | 8.28 |
| layoff workers | 832 | 10.18 |
| registered unemployment | 448 | 5.48 |
| Total | 8172 | 100 |

## 2.3. The government policies directed towards layoff workers

Urban enterprises begun to lay off redundant workers in 1993, when the State Council issued the Stipulation on Arrangement of Redundant Workers in State-owned Enterprises in April 1993. The stipulation provides regulations for state-owned enterprises to lay off redundant workers and the level of compensation for the layoff workers. These are listed below:

(1) Maternity leaves for female workers are allowed to be prolonged from 3 months to two years. Those who are taking prolonged maternity leaves are paid subsistence income.

(2) Workers who are retiring in five years are allowed to take early retirements and will be paid subsistence income before reach official retirement age.

(3) Workers, who want to quit their jobs, are given once-for-all compensation.

(4) Enterprises are encouraged to lay off or re-train surplus workers. During the period of re-training, workers should be paid lower wages. The level of the training wage should be determined by the enterprises.

The stipulation also provides special policy for enterprises re-employing redundant workers. It indicates that 'labour service companies' set up by enterprises to re-employ redundant workers will be exempted from corporate income tax in the first two years and in the next three years only half of corporate income tax is required.

In 1994, Ministry of Finance and General Bureau of Taxation issued 'Curricular of Preferential Policies on Corporate Income Tax', which specifies preferential treatment to enterprises employing layoff and unemployed workers. It states that if more than 60 per cent of employees in a 'labour service company' are layoff or unemployed workers, it will be granted a three-year exemption of corporate income tax. After three years, if the enterprise still keeps the proportion at 30 per cent, it will enjoy a half exemption of the corporate income tax for the following two years.

In the next few years no comprehensive policies for layoff workers were announced. 1997 saw the number of layoff workers reached its peak and the central government realised that the serious problem of layoff workers might be harmful to social and political stability. To speed up the process of re-employment of layoff workers and to alleviate poverty of layoff workers the Central Committee of the Chinese Communist Party and the State Council jointly issued the document No. 10 in 1998. It highlights the key points of new policies for layoff workers. The basic theme of the document is that reform of state enterprises is an inevitable process and is consistent with the long-run objective of the economic growth. During this process some workers may suffer temporarily from being laid-off and the government is committed to support them. In particular, the document states that:

1) Enterprises should consider workers' living standard before making decisions on who should be made redundant. For example, they should not lay off both husband and wife from the same family.
2) Local governments should encourage the rural labour force to find jobs within rural regions and the size of rural migration should be controlled.
3) Every enterprise with redundant workers should set up a re-employment service centre, which will distribute living allowances and other benefits, as well as pensions, unemployment and medical insurance for redundant workers.
4) The re-employment centres will take care of redundant workers for no more than 3 years. The living allowance for redundant workers should gradually reduce over the three year period, but no lower than unemployment benefit.
5) Layoff workers should be encouraged to set up small businesses of their own. For those who do so, they should enjoy three year tax-free status. Financial institutions should provide loans for these businesses.
6) Layoff workers, regardless of whether they were re-employed or not, should enjoy the same pension benefits and housing arrangements.
7) Enterprises with vacancies should give employment preference to layoff workers, especially female workers.
8) Layoff rural migrant workers are not eligible for any of these benefits.

To further specify and assist the implementation of the central government new policies, the General Bureau of Industrial and Commercial Management (GBICM) issued a circular in June 1998. The Ministry of Labour and Social Security (MOLSS) distributed the 'Circular of Re-employment Program for Training 10 millions of layoff Workers in Three Years' at the same time. The General Bureau of Taxation (GBT) handed out 'Circular of Preferential Policies of Tax for Labour Service Companies Established by Layoff Workers' in March 1999.

To summarise, the above documents stressed the following key points:

Layoff workers are re-defined as employees of state-owned enterprises who lost their work position, but still keep the employment relation with their work units. They are different

from the unemployed in the sense that they are provided subsistence income by their employers rather than getting unemployment benefits from governments.

The government attempts to establish a three pillars safety net system to protect the layoff workers. The first pillar is associated with Re-employment centres. The centres are organised by enterprises and are required to provide to the layoff workers the re-employment services such as providing job opportunity information, offering training courses, and guarantee subsistence income. When workers being laid off and enter into a centre, they would sign an agreement with the centre, which specifies obligations of the centre. They include provision of subsistence income, purchasing pension insurance, medical insurance, and unemployment insurance for the layoff workers. The maximum period for a layoff worker to stay in the centre is three years. After three years, he/she will have to leave the centres and become unemployed who will be supported by unemployment benefits or local minimum living allowance.

The second pillar is the Unemployment Insurance System. The system is applied to those layoff workers who still have not found a job after three years being with the re-employment centre. However, not everybody will receive unemployment benefit after three years. Only those whose work units have participated in the system (have been paying unemployment insurance).

The third pillar is the System of Minimum-Income Insurance designed only for urban residents. This system would provide minimum living allowance to urban households whose per capita income is below the officially poverty line, due to layoff or unemployment.

In the first half of 2000, a 10.96 billion yuan fund was raised as special fund for supporting layoff workers. Of which 27.4 per cent comes from contribution of enterprises, 50.4 per cent from government revenue, and 22.2 per cent from other sources. The total expenditure on layoff workers is 11.7 billion yuan, which is a 39.4 per cent increase compared to the same period in 1999. About 63 per cent of the total expenditure spent as subsistence income of layoff workers (at the re-employment centres) and 33.7 per cent spent on minimum income insurance for layoff workers.

To re-employ more layoff workers, the Chinese government actively encourages the expansion of the labour intensive industries, particularly the service sector in urban areas. Preferential policies are given to enterprises operating in commerce, trade, catering, tourism,

community services[4], and to other small labour intensive enterprises. The policy indicates that if layoff workers set up businesses in community services, they would enjoy three-year exemption of operation tax, personal income tax and other fees[5]. In addition, the procedure to register such a firm is simplified (GBICM, 1998).

The central government also requires enterprises to continue buying pension insurance for the layoff workers. If a layoff worker reaches the legal age of retirement, the calculation of his/her pension depends on the number of years his/her enterprise has purchased the pension insurance and on the number of years his/her labour market experience. Layoff workers remain the rights to purchase housing at the subsidised price from their original work units. For some layoff workers with low income and financial difficulty, their children can exempt from school fees.

The enterprises have to contribute equivalent to 3 per cent of their total wages as unemployment insurance for their workers from 1998, which is tripled that was required before 1998.

To speed up re-employment projects, MOLSS plans to train 10 millions of layoff workers in three years (from 1998 to 2000). Specific target is that 3 millions are trained in 1998, 3.5 millions in 1999, and another 3.5 millions in 2000. The number of workers are trained is distributed in some key sectors as follows. 1.2 million in textile industry, 0.4 millions in rail-way transportation industry, 0.5 millions in coal industry, 0.4 millions in military industry. At the same time, to reduce unemployment pressure, MOLSS also plans to implement probationary system for urban high school graduates. Under this plan high school graduates should take 1 to 3 year training courses before enter the labour market. All the training cost will be covered by the central and local government revenue.

The level of the subsistence income for layoff workers is set to be higher than local minimum standard living cost. The re-employment centres should pay pension, medical, and unemployment insurances for layoff workers and the level of the insurance should be equal to

[4] Community services cover the following businesses: cleaning and sanitation services; primary health services; child care; after-school care; services for disable children and for ageing population; care-taking for patients; and family planning consulting.

[5] More specifically, if the community services are provided by individual layoff workers or enterprises with more than 60 per cent re-employed layoff workers, they would be exempted from operation tax, city maintenance and construction fees and additional education fees for the first three years. layoff workers engaged in individual business would be exempted from personal income tax for three years.

60 per cent of average wages in the previous year. Insurance fees for pension and medical expenditure should be put into personal accounts.

The money used for supporting layoff workers comes from three sources. One third of it comes from government revenues, one third from enterprises contribution, and one third from other commitments such as contribution of unemployment funds. For enterprises located in less developed regions or enterprises making losses the central and local governments will give more financial support, while for those financially sound state owned enterprises the entire expenses should, in principle, be cover by themselves.

In some prosperous areas, local governments should start new projects of infrastructure and environmental protection to increase job opportunities for layoff workers. In remote and less developed areas, layoff workers should be organised to participate in agricultural production by utilising surrounding uncultivated land.

## 2.4. Conclusions

Increases in unemployment are unavoidable for a transitional economy moving from a planned to a market system at some stage of this process. As labour market liberalises, labour will be re-allocated from previously distorted state sector to market sector. At times, such a reallocation will generate large-scale unemployment. This has been proven by the experience of all the Eastern European transitional economies, as well as that of China.

Such a large scale unemployment will generate social and political unease. This is why most of the governments try very hard to compensate the welfare loss of the affected group. The government effort, however, is constraint by its financial power. The above discussion has shown that the Chinese government is serious about the unemployment problem and have paid a considerable amount of money trying to help a particular group of the unemployed, namely the state sector layoff workers. Questions arise as to how serious has the unemployed group been affected by the economic restructuring? Who are the most affected? How have they been coping during the difficult period? And, finally, are there better policy alternatives to compensate the most affected group? The following Chapters will try to answer these questions.

# 3
# UNEMPLOYMENT AND INCOME INEQUALITY IN URBAN CHINA

## 3.1 Introduction

It has been well documented in the literature that economic transition from a planned to a market oriented economy is often associated with a widening of income inequality (see Brainerd, 1998; Flemming and Micklewright, 2000; Khan, Griffin, and Riskin, 1999; Yang, 1999; Gustafsson, and Li, 1997, 1998, 1999; Milanovic, 1998; among others). The increase in inequality of income, however, may be induced by different forces and such differences may affect social stability in different ways. One type of increase in inequality could be a result of an income increase during the transition period. If the level of increase in income is higher for the high-income group than for the low-income group, one would observe increase in inequality. Another type of increase in income inequality could be a result of economic restructuring. As labour market liberalises the difference in the rate of returns to low and high skills will enlarge. In addition, economic restructuring will re-allocate labour from previously distorted state sector to market sector and hence induce large-scale unemployment and sectoral shift of employment (Flemming and Micklewright, 2000). Although such a restructuring may be unavoidable during the period of economic transition, it may reduce or keep constant the income at the lower end while increasing the income at the higher end of the distribution. Relatively speaking, the latter type of increase in income inequality may be more worrisome in terms of generating social instability than the former.

Unlike most Eastern European countries, economic restructuring took place gradually in China. Although it started in the late 1970s, up until the late 1980s and early 1990s little has changed in wage determination, job security, and sectoral composition of employment in urban areas (Meng, 2000). This gradualism approach may have affected the way in which increases in income inequality in China differ from that in the Eastern European economies. For example, according to Flemming and Micklewright (2000), in most of the Eastern European countries the significant increase in income inequality is accompanied by both increases in the top end and decreases in the bottom end of the distribution, whereas Zhao and Li (1999) indicate that in China income for the top 3 per cent of urban household increased by 53 per cent and for the bottom 20 per cent increased by 20 per cent in the period 1988 to 1995. Thus, up until the mid-1990s, inequality in urban China was a question of how

much the different parts of the society shared the larger pie. Everybody was made better off, only that the top end of the distribution was much more better off than the lower end of the distribution. This has generated limited social and political concerns.

Since the mid-1990s, however, economic restructuring in urban China has accelerated in the areas of state enterprise reform, social security reform, and labour market reform. As a result, the state and collective employment share has reduced from 76 per cent of total urban employment in 1995 to 49 per cent in 1999 and unemployment level has increased significantly. Although official unemployment figure has been kept very low at around 3 per cent level, several different estimates suggest that there are around 15 to 27 million accumulated state sector layoff workers in 1999, which accounted for additional 7 to 12 per cent of urban labour force (Fan, 2000 and Appleton, Knight, Song , and Xia, 2001).

The questions naturally arise as to whether the acceleration of economic restructuring has changed the nature of the increase in income inequality in urban China, to what extent the increase in inequality after the mid-1990s is due to the economic restructuring, and which particular group of household are badly affected by the economic restructuring. Using three comparable urban household surveys this chapter investigates these questions by comparing the degree of the change in income inequality between the periods 1988-1995 and 1995-1999 and contributing factors to such changes. The answer to these questions may add to our knowledge of the relationship between the process of economic transition and income distribution. In addition, it may help policy makers to formulate more appropriate policies to establish social stability.

Previous studies on change in income inequality in China are mainly focused on the period up to the mid-1990s (Knight and Song, 1991; Kahn, Griffin, and Zhao, 1992; Aaberge and Li, 1997; Gustafsson and Li, 1997, 1998, 1999; Knight and Li, 1999; Yang, 1999; Khan and Riskin, 2000; Riskin, Zhao, and Li, 2001). Studies on recent development in income inequality are not available. This is mainly due to the lack of available data. In early 2000 the Institute of Economics at the Chinese Academy of Social Sciences with assistance from the China Statistical Bureau has conducted a new household income distribution survey, which collected information on household income and expenditure in 6 provinces in 1999. This study utilises this new survey together with two other comparable surveys conducted by the same Institute for the year 1988 and 1995 to investigate the factors attributed to the increase in income inequality over the period of 1988 to 1999.

In addition to studying the most recent development of the issue of income inequality, this study also adopts a new methodology. Most of the previous studies on investigating the contributing factors to the level and change in income inequality in China adopt methodologies only allowing for limited number of contributing factors to be considered (see, for example, Aaberge and Li, 1997; Gustafsson and Li, 1998, 1999). This study employs a regression based decomposition approach developed by Fields (1998) that permits a control of wide range of contributing factors to the level and change in income inequality. This enables us to identify the main contributing factors more accurately.

The chapter is structured as follows. The next section provides background information on the process of economic reform in urban China and its relationship with income distribution. Section 3 describes methodology and data. Section 4 presents preliminary examination of the change in inequality over the period studied. Section 5 investigates the contributing factors to the change in income inequality over the period. Concluding remarks and policy implications are given in Section 6.

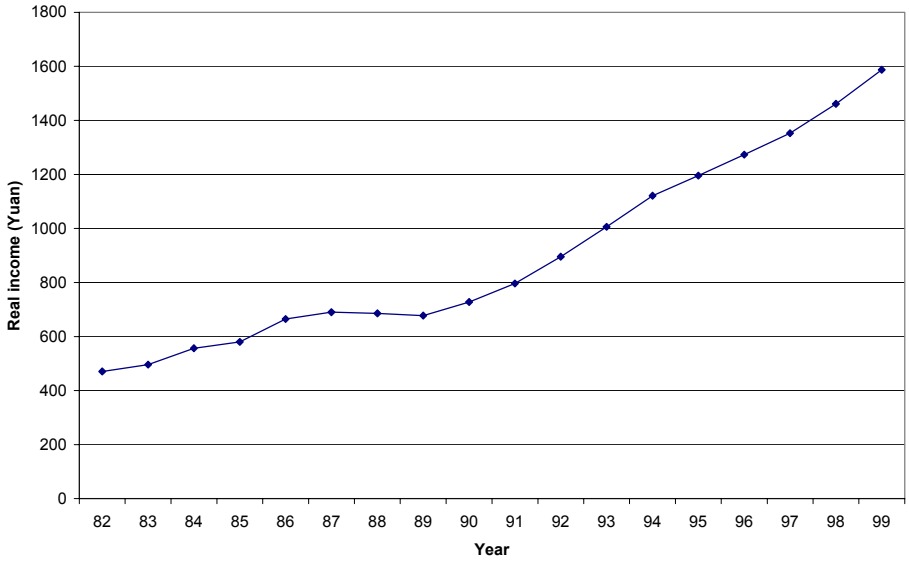
## 3.2 Background

China has experienced a fast economic growth since the economic reform began in the late 1970s. During the period 1978-1999, per capita real GDP increased by 8.3 per cent per year. Household income also increased considerably. Figure 3.1 present the average urban per capita household real income level (at 1982 price level) in the period where comparable data are available (1982-1999). During this period urban household per capita real income increased by 7.4 per cent per annum (China State Statistical Bureau (SSB), 2000). The rate of increase, however, varied for different periods. From 1982 to 1990, the annual increase in urban household real income is 5.6 per cent, this ration is 8.3 and 7.3 per cent for the period 1988 to 1995 and 1995 to 1999, respectively.

Accompanying such a significant economic growth, income inequality in China has also increased. The World Bank (1997) reports that the Gini coefficient for China as a whole increased from 28.2 in 1981 to 38.8 in 1995. The increase in inequality, however, varied significantly in different period of economic reform. Figure 3. 2 shows the overall change in distribution of real per capita household income (PCHI) in urban China during the period 1981-1999. The bar chart in Figure 3.2 shows the ratio of the mean real income of the $10^{th}$ to the first income deciles (right-hand scale). The top and the bottom two lines indicate the

mean real income of the 10th income decile and the first income decile as percentage of that of the median income, respectively.

**Figure 3.1** Real per capita household income in urban China, 1982-1999



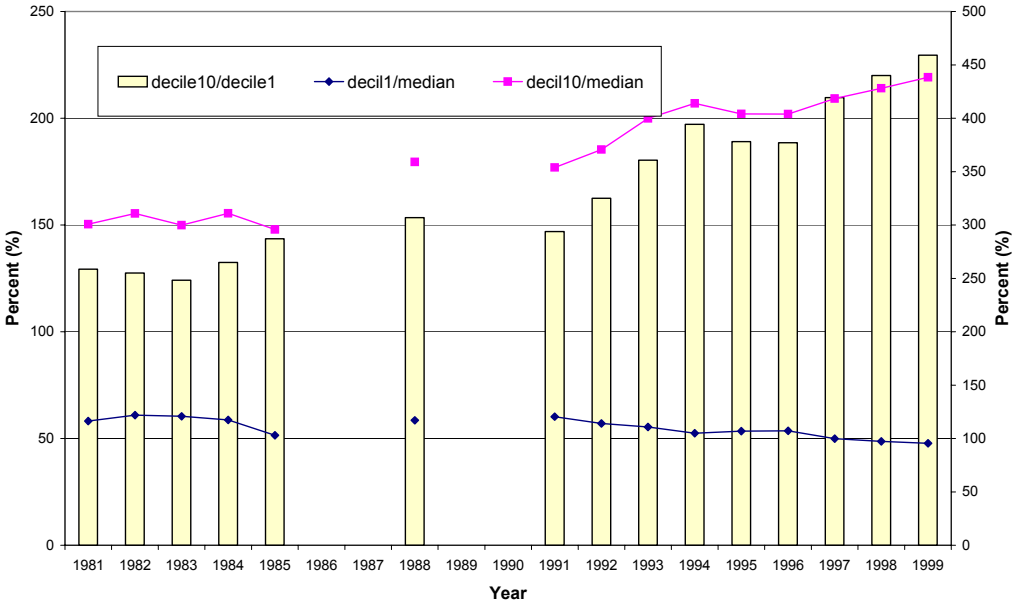

**Source:** China State Statistical Bureau, 2000.

In the period before the early 1990s, economic reform was mainly concentrated on the product markets. Little was changed in terms of the compressed wage structure, immobility of labour, and the domination of state sector employment (Meng, 2000). Correspondingly, income distribution changed very slightly. According to Khan and Riskin (2000), the distribution of income in urban China in 1988 was remarkably egalitarian. This is also shown in Figure 3. 2, where the income ratio of 10th decile over the 1st decile changed from 259 per cent in 1981 to 295 per cent in 1991. The income ratio of the 1st decile over the median income increased slightly from 58 per cent to 60 per cent, where the ratio of the 10th decile over the median income increased from 150 per cent to 177 per cent.

The factor market reform started gradually from the early 1990s. By the mid-1990s labour mobility across urban regions and between rural and urban areas was increased (see, for example, Meng, 2000; West and Zhao, 2000) and rate of return to different levels of market skills was enlarged (Knight and Song, 1999). Accompanying this reform process, income inequality increased sharply (Kahn, Griffin, and Zhao, 1992; Aaberge and Li, 1997; Gustafsson and Li, 1997, 1998, 1999; Knight and Li, 1999; Yang, 1999; Khan and Riskin, 2000; Riskin, Zhao, and Li, 2001). Gustafsson and Li (1999) reports that the Gini coefficients of household income for urban areas in 11 provinces increased from 22.8 in 1988 to 27.6 in 1995. Khan and Riskin (2000) using the same data reports a higher increase in the Gini

coefficient. Their calculation suggests a increase in Gini coefficient from 23.3 to 33.2 between 1988 and 1995.[6]

Figure 3. 2 Change in dispersion of real per capita household income in urban China, 1981-1999




**Source:** China Statistical Yearbook, various years.

The aggregated data also provide us with a consistent story. The ratio of 10th income decile over the 1st income decile as shown in Figure 3. 2 increased from 295 per cent in 1991 to 378 per cent in 1995. The ratio of first income decile over the median income reduced from 60 to 54 per cent, while this ratio for the 10th income decile increased from 177 to 202 per cent. For the first time since the economic reform started we observed a decline in the relative income of the bottom end of distribution. This is accompanied by a relative increase in the top end of income distribution. The increase in income inequality in this period, however, was identified as mainly a result of regional dispersion (see, for example, Gustafsson and Li, 1999 and Khan and Riskin, 2000).

Since 1995 urban economic reform has taken a sharp turn. Due to soft budget constraints and other property rights related problems the Chinese state sector has been performing badly. In 1995-1996, around 50 per cent of enterprises were making losses. To vitalise the Chinese economy the policy of significant reform in the state enterprises was introduced in 1997 (Appleton, Knight, Son, and Xia, 2001). As a result of this policy many

[6] The reason for this difference is not clear.

small and median sized loss making state enterprises were bankrupted. Those which survived started to take efficiency measures seriously. These two forces led to large-scale retrenchments.

Although official figures on urban unemployment only increased from 2.9 per cent in 1995 to 3.1 per cent in 1999, these figures do not include the majority of unemployed workers who are laid off from the state sector. Several estimates on the number of state sector layoff workers are available. Fan reports a 15 million accumulated state sector layoff workers in 2000 (Fan, 2000), whereas Appleton et al's (2001) estimate of this figure is 27.7 million. Using urban household surveys of 1995 and 1999 conducted by the Institute of Economics, Chinese Academy of Social Sciences we find that over this period urban unemployment rate increased from 8 per cent to 17 per cent.

Such a significant economic restructuring and increase in unemployment is bound to have a strong effect on income distribution. This is so because a sudden increase in unemployment pushes a large group of people into the lower end of income distribution at the same time when lower end of the income is decreasing. Both of these effects enlarge the income gap between the employed and unemployed. In addition, involuntary job losses may also have different effects on individuals and hence enlarge the income distribution within the group of the layoff workers. For example, those layoff workers who are young, educated, and energetic may easily find better paid jobs somewhere else in the economy or set up their own business, while those who are older or less skilled may fall into long term unemployment or accept jobs in the lower paid informal sector. Those whose families members are employed may find it easier to cushion the income reduction than those whose families are also unemployed. Those who live in developed and dynamic regions may easily find other jobs while those who live in less developed regions may become long term unemployed.

The effect of the significant economic restructuring and subsequent large scale unemployment on income distribution during the period of 1995 to 1999 is quite apparent in Figure 3. 2. It shows that the income ratio of $10^{th}$ decile over the $1^{st}$ decile increased further from 378 per cent in 1995 to 459 per cent in 1999. More importantly, the relative income of bottom end of the distribution reduced further from accounting for 54 per cent of median income in 1995 to accounting for 47 per cent in 1999, while the top end of the distribution continued to increase.

To sum up, income inequality in urban China has increased. The change in income inequality, however, may be due to different factors over different periods of economic reform and hence has different effect on social and political stability. To understand these differences will not only add to our knowledge of the relationship between economic transition and income distribution, but also help policy makers in formulating the right policy to tackle the problem.

### 3.3 Methodology and data

Inequality may be measured in many different ways (Cowell, 2000). Because the purpose of this study is to investigate the change in inequality over the 1990s and the contributing factors accounting for such a change, the choice of inequality measures is of secondary importance relative to the methodology used to identify the contributing factors. In this study we choose several commonly used alternative measures for inequality, such as, the coefficient variation, the Gini coefficient, the standard deviation of logs, and the Theil entropy measure.

Decomposition of the contributing factors to income inequality has long been an important methodological issue in the income distribution literature (Cowell, 2000). Most of the previous studies on income inequality employ the decomposition methodology formally developed by Shorrocks (1984) and extended by Cowell and Jenkins (1995) and Jenkins (1995). This steam of decomposition approach decomposes certain inequality indices into between and within mutually exclusive population subgroups. Although this type of decomposition is the most popular methodology used in the literature, it has some shortcomings. One of them is that the relative contributions of the factors depend critically on the order in which they are introduced into the analysis (Fields, 1998). In addition, as such decomposition requires the specification of a partition of the population, if the sample size is not large enough, one could not generate meaningful measure of within group inequality for each cell. Given that most of empirical studies have limited sample size, the number of contributing factors to income inequality, which can be controlled for, is limited.

Another stream of the decomposition methodology is developed by DiNardo, Forthin, and Lemieux (1996) and modified by Cameron (2000).[7] This type of decomposition method

[7] Bourguignon, Fournier, and Gurgand (1998) independently developed a micro-simulation decomposition methodology, which is very similar to DiNardo et al (1996) and Cameron (2000).

uses simulation technique to impose structure of income generating factors from the terminal year on the initial year to analyse the contributing factors to the change of income/wage inequality. Although this type of decomposition is useful for looking at changes in inequality, it suffers from the similar shortcomings as in the case of Shorrocks (1982) and Cowell and Jenkins (1995), that is the results heavily depend on the order in which the factors are introduced into the analysis (Cameron, 2000) and the limitation in the number of contributing factors that can be analysed.

Fields (1998) applies Shorrocks' (1982) decomposition rules to a regression based decomposition and developed a new methodology, which utilises the information derived from income-generating equations, to account for the contributing factors to the level of income inequality and its change over time, and across countries/groups.

The Shorrocks (1982) methodology decomposes income inequality into inequality in several additive factor components of income. He shows that given the income $Y^i = \sum_k Y^{ik}$, where $k$ is the number of components of the income, any inequality index can be decomposed into the relative factor inequality weights $s_k$ as long as the six assumptions stated in his paper are followed.

Fields (1998) adopted Shorrocks' decomposition theorem and applied it to the case of income generating functions $ln\,Y_{it} = \sum_j \alpha_{jt} Z_{ijt}$, where $j$ is the number of explanatory variables included in the function. He shows that following the six assumptions stated in Shorrocks (1982), any inequality index which is continuous and symmetric and for which $I(\mu, \mu, \ldots \mu)=0$, the contribution of an income generating factor $Z_j$ to the total income inequality can be written as:

$$p_j(lnY)=s_j(lnY)/R^2(lnY) \qquad (1)$$

where $$s_j(ln\,Y) = cov[a_j Z_j, ln\,Y] / \sigma^2(ln\,Y) = \frac{a_j * \sigma(Z_j) * cor[Z_j, ln\,Y]}{\sigma(ln\,Y)}. \quad (2)$$

The contribution of the income generating factor $Z_j$ to the change in the total income inequality measured by any inequality index $I(.)$ over time/between countries/groups can be written as:

$$\Pi_j(I(.)) = \frac{s_{j,2} * I_2 - s_{j,1} * I_1}{I_2 - I_1} \qquad (3)$$

where the subscript 1 and 2 refer to time/country/group.

Fields (1998) points out two important qualifying issues related to the analysis of the factors which contribute to the change of income inequality. First, unless there is Lorenz-dominance it is impossible to determine whether inequality has increased or decreased over time as there always exists an inequality measure that registers an increase and another that registers a decrease in inequality (Sen, 1973). Thus, with Lorenz-crossing we are unable to specify which factor is responsible for the change in inequality over time. Second, the proportion of each factor contributing to the change in income inequality over time depends on the choice of inequality measure used.

Although simple, the Fields' (1998) decomposition methodology is rather powerful. It can identify the factors contributing to the level of income inequality and its change over time (or between countries/regions) without any limitation on the number of factors that can be included in the analysis. In addition, all the factors can be controlled for at the same time and hence the results do not rely on the order of the factors being introduced. These are the main advantages of this approach that lead us to adopt it.

Another issue related to methodology is to model income generating equation. Household income (or per capita household income) is normally defined as a function of earnings of household members, income from household business, and household demographic characteristics. In the case of urban China, a very limited number of households has family business and hence income from this source is not an important component. Thus, household income can mainly be attributed to factors that affect earnings of household members and other demographic features of the household. In particular, the factors which affect earnings of household members include human capital variables, household members' employment status which reflect the effect of economic restructuring on income inequality, household composition and demographic features, and household regional locations. The household income generating function, thus, may be specified as follows.

$$\ln Y_i = \beta_j X_{ij} + \gamma_j R_{ij} + \delta HH_i + \lambda Region_i + \varepsilon_i \qquad (4)$$

where $\ln Y_i$ is household or real PCHI in logarithmic terms for household $i$. $X_{ij}$ is a vector of human capital and other factors which affect earnings of member $j$ in household $i$, including

age and its squared term, years of schooling, a dummy variable indicating if the individual is a party member or not, and a dummy variable indicating the individual's health condition. $R_{ij}$ is a vector of factors indicating the effect of economic restructuring on earnings of individual $j$ of household $i$. Variables included in this vector contain a dummy variable indicating whether the individual is working in a loss making firm or not, whether the individual is unemployed/laid-off or not, and the ownership of employment of the individual. $HH_i$ is a vector of household demographic composition variables, including the gender of the household head, household composition, household size, and the proportion of household labourers. Finally, $Region_i$ is the regional indicator of ith household.

Data used in this study are from three Household Income Distribution Surveys conducted by the Institute of Economics, Chinese Academy of Social Sciences for the years 1988, 1995 and 1999. The survey questionnaires are designed in a relatively consistent manner for the three years and they provide a good basis for a comparative study. The surveys include 8992, 6930, and 4493 households for the three years, respectively. Excluding missing values the number of households included in this study is 8011, 6363, and 4002 for the 3 survey years, respectively. In 1988 and 1995, the surveys cover 11 provinces whereas in 1999 it covers 6 out of the 11 provinces covered in the previous surveys.[8]

Two income measures are used in this study, the real household disposable income and the real household per capita disposable income. The household disposable income is measured as the sum of individual income from all household members and household incomes not attributable to individuals, including household income from family enterprises and property.[9] The real income are derived by using urban CPI (1988=100) provided by the China State Statistical Bureau (State Statistical Bureau, 2000). The summary statistics of the data are reported in the Appendix A.

### 3.4 Changes in income inequality over time

According to the survey data the average real household per capita disposable income has grown from 1398 yuan in 1988 to 2125 yuan in 1995, and further to 2647 yuan in 1999.

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[8] The 11 provinces include: Beijing, Shanghai, Jiangsu, Liaoning, Anhui, Henan, Hubei, Guangdong, Sichuan, Yuennan, and Gansu. Among them Beijing, Jiangsu, Liaoning, Henan, Sichuan, and Gansu are included in the 1999 survey.

[9] Gustafsson and Li (1999) used the same survey data from 1988 and 1995 surveys. The disposable income used in their study, however, is adjusted for the housing subsidies received by households who were renting from the government. As can be seen later, such an adjustment does not change the measure of income inequality much.

The average annual growth rate is 6.2 per cent for the period of 1988 to 1995 and 5.6 per cent for the period of 1995 to 1999. These growth rates are slightly lower than those reported in Section 2 from the national statistical data.

Table 3.1 presents the measures of income inequality for the three survey years. We report two sets of inequality measures for the 1988 and 1995 data: the first column under each of the two years reports the measures for the full sample (11 provinces) and the second column reports that for the sample of 6 provinces which are consistent with those included in the 1999 data. It is shown clearly that income inequality has increased during the period of interest. Similar story appears regardless which inequality measure and which income measure or which sample is used.

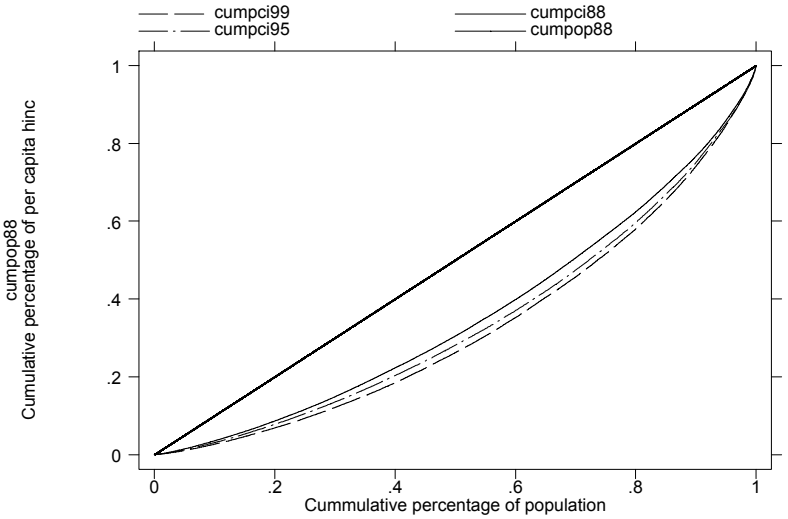
**Table 3.1** Various inequality measures of income, 1988, 1995, and 1999

| | Real per capita HH income | | | | | Real HH income | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1988 | | 1995 | | 1999 | 1988 | | 1995 | | 1999 |
| | 11 Prv. | 6 Prv. | 11 Prv. | 6 Prv. | 6 Prv. | 11 Prv. | 6 Prv. | 11 Prv. | 6 Prv. | 6 Prv. |
| Relative mean Dv. | 0.163 | 0.149 | 0.199 | 0.194 | 0.223 | 0.163 | 0.148 | 0.195 | 0.185 | 0.221 |
| Coeff. Var. | 0.488 | 0.447 | 0.604 | 0.587 | 0.630 | 0.487 | 0.442 | 0.593 | 0.535 | 0.653 |
| Sd. Dv. of logs | 0.422 | 0.392 | 0.507 | 0.500 | 0.603 | 0.431 | 0.404 | 0.499 | 0.484 | 0.606 |
| Gini coefficient | 0.234 | 0.215 | 0.282 | 0.274 | 0.313 | 0.235 | 0.215 | 0.278 | 0.263 | 0.312 |
| Mehran measure | 0.322 | 0.300 | 0.383 | 0.378 | 0.430 | 0.323 | 0.302 | 0.377 | 0.364 | 0.429 |
| Piesch measure | 0.190 | 0.173 | 0.231 | 0.222 | 0.255 | 0.191 | 0.172 | 0.228 | 0.212 | 0.254 |
| Kakwani measure | 0.052 | 0.044 | 0.072 | 0.069 | 0.088 | 0.052 | 0.044 | 0.071 | 0.063 | 0.088 |
| Theil entropy measure | 0.097 | 0.082 | 0.140 | 0.131 | 0.165 | 0.098 | 0.082 | 0.137 | 0.118 | 0.168 |
| Theil mean log Dv. | 0.092 | 0.079 | 0.132 | 0.126 | 0.171 | 0.094 | 0.080 | 0.129 | 0.116 | 0.172 |

Using Gini coefficient as an example, our estimates of the Gini for per capita household disposable income for the full sample increased from 23.4 in 1988, to 28.2 in 1995, and further increase to 31.3 in 1999. The conclusion does not change when samples for 1988 and 1995 surveys are restricted to the same six provinces included in the 1999 survey. The calculated Gini Coefficient using consistent sample of 6 provinces increased from 21.5 in 1988 to 27.4 in 1995. Our observed Gini coefficient using full sample for 1988 and 1995 are virtually the same as those calculated in Gustafsson and Li (1999), where they obtained the Gini Coefficient for urban per capita income changing from 23.93 in 1988 to 27.55 in 1995.

**Figure 3. 3** Lorenz curves for real per capita household disposable income, 1988, 1995, and 1999

Penal A: Full sample




Panel B: Sample of consistent 6 provinces

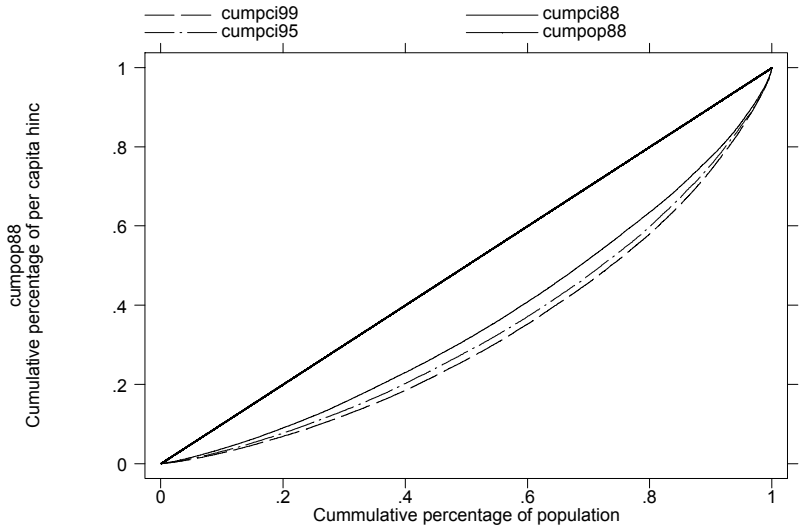



Figure 3. 3 plots the Lorenz curves for the three survey years. Panel A presents the Lorenz curves for using the full sample, whereas Panel B shows those using the 6 province sample. The solid curve indicates the income distribution in 1988, the dash and dotted line indicating the case in 1995, whereas the dashed curve presenting the 1999 situation. If one Lorenz curve lies everywhere above another it is said to 'Lorenz dominate' the other curve and all inequality measures will show that inequality to be lower for the higher curve. What we observe from Figure 3. 3 is that the 1988 Lorenz curve dominates that of the 1995, and the 1995 curve dominates that of the 1999. These confirm that income inequality has

increased over the period of study. The fact that there is no Lorenz-crossing will enable us to unambiguously study the factors contributing to the increase in income inequality.

As discussed in the introduction, an interesting issue about income inequality is the cause of the increase in inequality. In particular, whether it is generated by an increase in both the top and the lower end of the income distribution and that the increase in the top end is greater than that in the lower end, or by an increase in the top end and a decrease in the lower end of the distribution. The former may be considered to be lesser of a concern than the latter with regard to generating social and political instability.

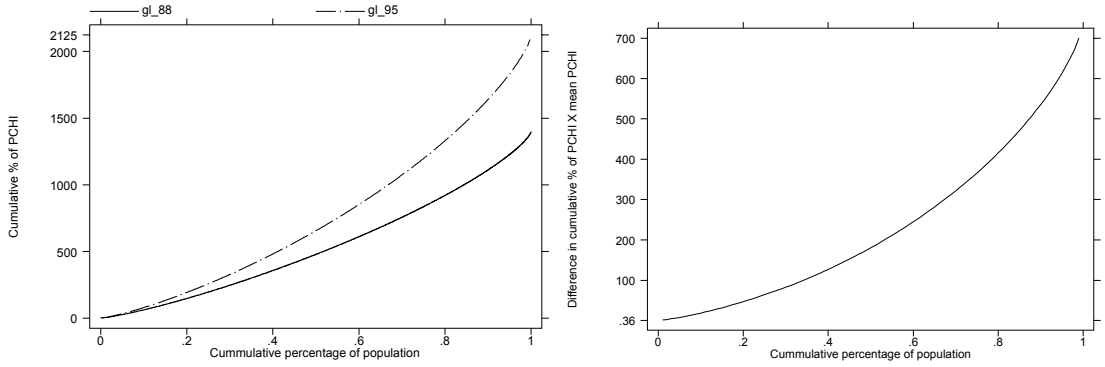
To understand whether the increase in income inequality has affected social welfare over the period studied, Figure 3. 4 presents the generalised Lorenz curve for 1988, 1995 and 1999 and the difference between the 1988 and 1995 curves and that between the 1995 and 1999 curves. The vertical axis represents the cumulative percentage of per capita household income multiplied by the mean per capita household income. It shows the total resources being accessed by each percentile of population. If one generalised Lorenz curve lies everywhere above another, it is said that the higher curve is preferable to the lower curve with regard to social welfare as every percentile of the population distribution has access to more resources.

Panel A of Figure 3. 4 illustrates the comparison between 1988 and 1995 distributions. It is clear that although income inequality increased in 1995, the income growth over the period has more than compensated for such an increase in inequality as social welfare in 1995 is everywhere greater than that in 1988.

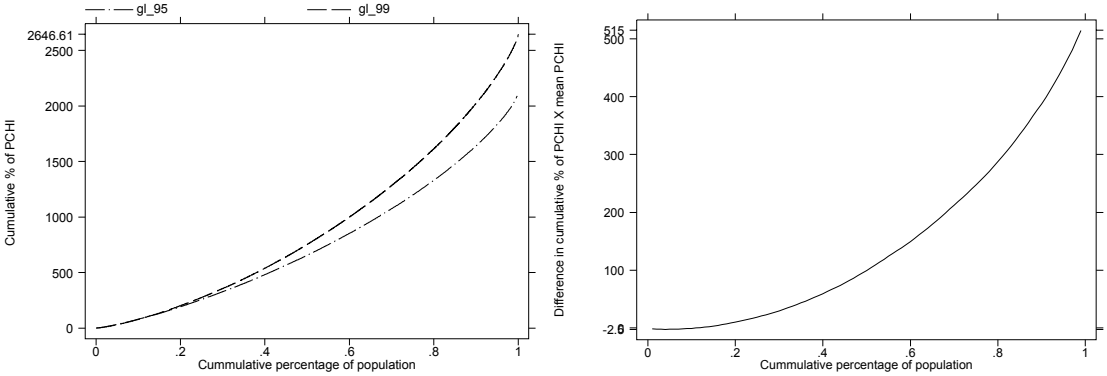
Panel B of Figure 3. 4 demonstrates the comparison between 1995 and 1999, where we observe that the 1999 generalised Lorenz curve lies below that of the 1995 at the bottom 10 per cent of the distribution (shown by the negative value of the vertical axis of the graph indicating the difference between the two years) and above the 1995 curve everywhere after the bottom 10 per cent of the distribution. This result suggests that the social welfare of the bottom end of the income group is worse off in 1999 than that in 1995, while the above tenth percentile income group is better off.

**Figure 3. 4** Generalised Loronz curve

Panel A: 1988 and 1995



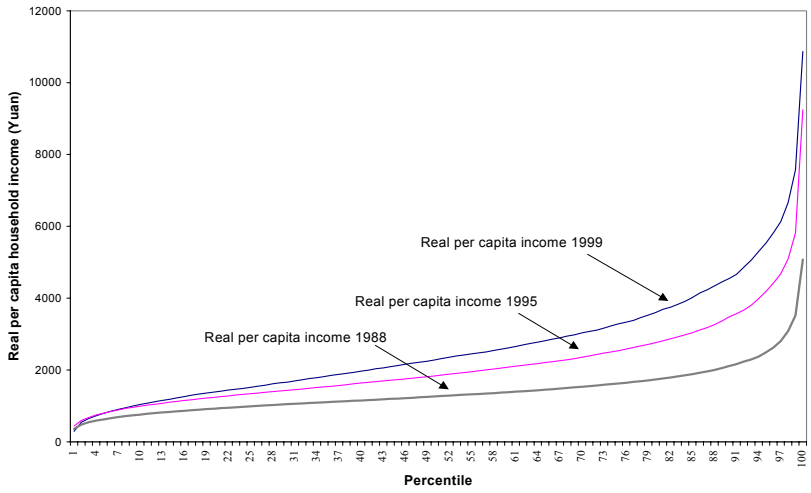

Panel B: 1995 and 1999



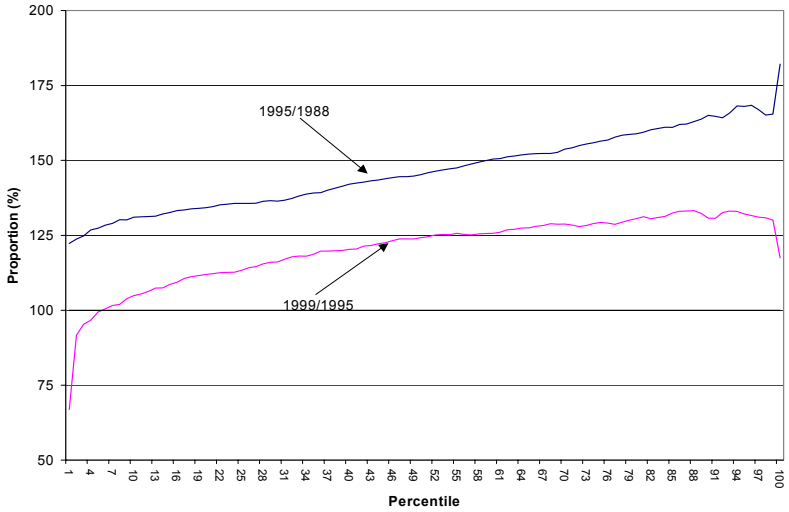

To further identify the group which suffered the most from the welfare loss Figure 3. 5 depicts the changes in the average income of each percentile of real PCHI distribution. Panel A shows the average real PCHI distribution over the three years and Panel B indicates the change of the distribution. It reveals more clearly that the growth in income inequality over the two periods (1988 to 1995, and 1995 to 1999) has different patterns. Over the 1988 to 1995 period, both the top and bottom end of the income distribution had gained strong income growth but the top end grew stronger than the lower end. Whereas over the 1995 to 1999 period we observed a strong growth for the top sixty percentiles (about 20 per cent increase), a moderate growth for the lower middle income group (around 10 to 20 per cent increase), a very slight increase for the fifth to the fifteenth percentile, and a reduction in income for the bottom 5 percentiles.

**Figure 3. 5** Average per capita income distribution, 1988, 1995, and 1999

**Panel A**

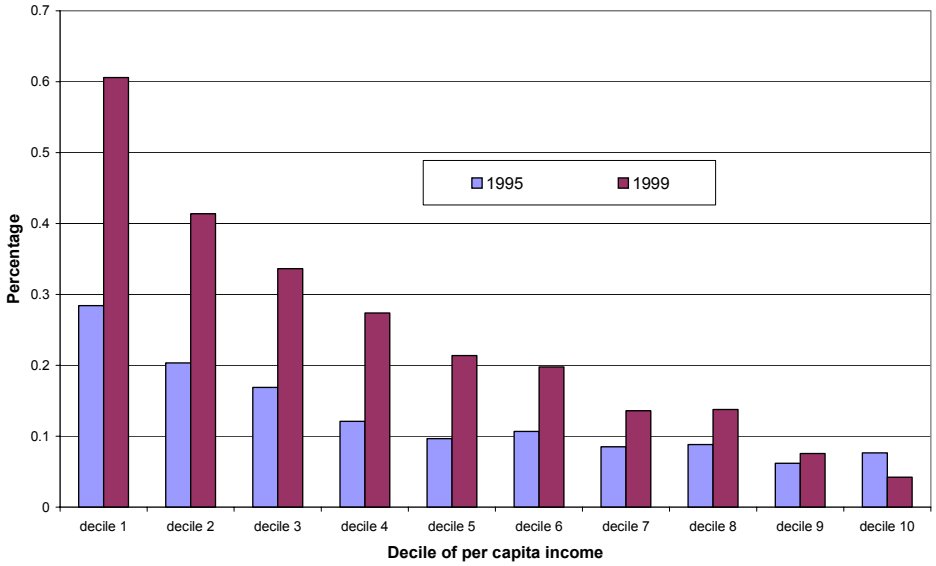



**Panel B**




Having identified the changing pattern of the growth in income inequality, the next important question is why has the income at the lower end of the distribution reduced while the median and high income families enjoyed significant income gains over the period 1995 to 1999. As discussed in Section 2, economic restructuring may be an important cause for this. To illustrate this correlation Figure 3. 6 presents the distribution of household with unemployed members across different income deciles in 1995 and 1999. It indicates that the number of households with unemployed members has more than doubled for the lower two deciles while it has hardly changed or even reduced for the top two deciles from 1995 to 1999.

Figure 3. 6 Distribution of households with unemployed members across income deciles




If unemployment is an important cause for the reduction in income at the lower end of the distribution between 1995 and 1999, why is it that not all unemployed households fall into the low income group? Perhaps households have cushioned away some of the impact of unemployment have on income. The reduction in household income from one member being unemployed can be compensated by other members income if they are employed. On the contrary, households with more members being unemployed are less likely to be compensated within the household and hence more likely fall into the lower end of the distribution. Indeed, in 1999 around 50 per cent the households with 2 or more members being unemployed are located at the bottom 10 percentile of the income distribution, and about 30 per cent of such households are concentrated at the lowest 5 percentile of the distribution. Whereas in 1995 only 25 per cent of the households with more than 1 members being unemployed are located in the bottom 10 percentile of the income distribution.

## 3.5 Identifying contributing factors to the change in income inequality

### 1 Determinants of income variation

To evaluate the contributing factors to the level of income inequality and its change across the three survey years we first estimate the income generating model specified in equation 3 for the three cross-sectional data sets. Table 3.2 reports the results for the full sample with the real per capita household disposable income as the dependent variable. The results using the sample of the same 6 provinces for the three survey years are consistent with

that reported in Table 3.2, except for the regional effect. These results are reported in Appendix B. In addition, we also estimated equation 4 using real household income as the dependent variable for both samples and the results are consistent.[10]

Before discussing the results some data and estimation issues need to be addressed. Due to a high multicollinearity between age and years of schooling of husbands and wives we use the average age and years of schooling of the household labourers. Another issue is that the concept of 'working in a loss-making firm' did not exist in 1988 and hence the variables representing it are not included in the 1988 estimation.

Table 3.2 reveals some very interesting results, especially when comparing them across the three survey years. Below we discusses the results following the order of human capital related factors, economic restructuring, household composition, and regional effects.

The effect of education on real PCHI has increased over time. One more year of education increasesreal PCHI by 1.9 per cent in 1988, while this rate has increased to 3.4 per cent in 1995, and further to 4.4 per cent in 1999. The increase in the return to education reflects the effect of market oriented economic reform in the urban labour market.

The effect of the average age on real PCHI does not seem to have a consistent pattern. It increased from 1988 to 1995 and then reduced from 1995 to 1999. The effect from the per capita income equation is statistically insignificant in 1999 and from the total household income equation is statistically insignificant in 1988. The change in the patterns of age-income profile could be a result of different factors, such as the change in the shape of the age-earnings profile, in family composition, and in the macroeconomic conditions of the survey years.

[10] The results using real HI as dependent variable are available upon request from the author.

**Table 3.2** Determinants of real per capita household disposable income 1988, 1995, and 1999

| | 1988 | | 1995 | | 1999 | |
|---|---|---|---|---|---|---|
| | Coef. | T-Ratio | Coef. | T-Ratio | Coef. | T-Ratio |
| Constant | 7.6875 | 99.63 | 7.3795 | 64.40 | 7.7957 | 44.13 |
| Average age of HH labour | -0.0130 | -3.43 | 0.0272 | 5.28 | 0.0113 | 1.41 |
| (Average age of HH labour)$^2$ | 0.0002 | 4.31 | -0.0003 | -4.48 | -0.0001 | -0.90 |
| Average years of schooling of HH L | 0.0188 | 13.30 | 0.0336 | 18.95 | 0.0442 | 14.35 |
| H party membership | 0.0331 | 4.55 | 0.0622 | 6.58 | 0.1034 | 7.11 |
| W party membership | 0.0643 | 6.13 | 0.0663 | 5.40 | 0.1029 | 5.73 |
| H being unemployed | 0.0384 | 0.89 | -0.0887 | -4.32 | -0.2880 | -11.86 |
| W being unemployed | 0.1609 | 8.38 | -0.1053 | -5.69 | -0.2558 | -12.66 |
| 2$^{nd}$ generation being unemp. | -0.0081 | -0.25 | -0.0749 | -2.78 | -0.1627 | -4.58 |
| H working in loss-making firm | | | -0.0902 | -7.56 | -0.1717 | -10.39 |
| W working in loss making firm | | | -0.0867 | -7.30 | -0.0846 | -5.10 |
| H working in local SOEs | -0.0506 | -5.22 | -0.1045 | -8.95 | -0.0790 | -4.42 |
| H working in collectives | -0.0906 | -7.52 | -0.1572 | -9.02 | -0.1427 | -5.14 |
| H working in private sector | -0.0175 | -0.61 | -0.0671 | -2.06 | -0.0038 | -0.14 |
| H did not report sector | 0.0757 | 3.72 | -0.0226 | -0.68 | -0.2693 | -3.60 |
| W working in local SOEs | -0.0042 | -0.39 | -0.0275 | -2.11 | -0.0145 | -0.74 |
| W working in collectives | -0.0514 | -4.90 | -0.0712 | -4.61 | -0.1129 | -4.76 |
| W working in private sector | -0.0823 | -3.57 | -0.1272 | -4.04 | -0.0723 | -2.49 |
| W did not report sector | -0.0836 | -5.85 | -0.1678 | -7.95 | -0.2684 | -8.04 |
| Male as the household head | 0.0106 | 0.58 | -0.0273 | -2.81 | -0.0444 | -2.96 |
| % of kids aged 0-5 | -0.4620 | -13.00 | -0.2340 | -4.00 | -0.2252 | -2.36 |
| % of kids aged 6-10 | -0.2774 | -9.04 | -0.1238 | -2.75 | -0.0343 | -0.49 |
| % of kids aged 11-16 | -0.2856 | -9.32 | -0.0693 | -1.74 | -0.1601 | -2.74 |
| % of elderly | 0.0419 | 0.98 | 0.2181 | 5.41 | 0.1687 | 2.88 |
| Household size | -0.2185 | -46.93 | -0.2721 | -32.23 | -0.1905 | -13.98 |
| Number of labourers in the HH | 0.2022 | 27.75 | 0.1857 | 17.96 | 0.1378 | 9.38 |
| Liaoning | -0.0561 | -3.08 | -0.3165 | -14.87 | -0.4904 | -20.64 |
| Jiangsui | -0.0175 | -0.98 | -0.0588 | -2.79 | -0.1663 | -6.92 |
| Henan | -0.2954 | -16.74 | -0.4663 | -21.14 | -0.5309 | -22.61 |
| Sichuan | -0.1101 | -1.29 | -0.2832 | -13.64 | -0.4499 | -19.67 |
| Gansu | -0.1363 | -6.93 | -0.4964 | -20.22 | -0.5093 | -20.66 |
| Shanxi | -0.2976 | -16.38 | -0.4857 | -22.10 | | |
| Anhui | -0.1773 | -9.61 | -0.3688 | -16.08 | | |
| Hubei | -0.1602 | -8.96 | -0.2818 | -13.39 | | |
| Guangdong | 0.2892 | 16.19 | 0.3821 | 16.87 | | |
| Yunnan | -0.0727 | -3.98 | -0.2738 | -12.62 | | |
| Number of observations | 8011 | | 6363 | | 4002 | |
| Adjusted $R^2$ | 0.4878 | | 0.5398 | | 0.5162 | |
| $R^2$ | 0.4899 | | 0.5423 | | 0.5198 | |

**Note**: (1) The central state owned enterprises sector and Beijing are used as the omitted category for the sector of employment and region, respectively. (2) HH refers to household; H refers to husband, and W refers to wife.

Party members earn significantly higher earnings than non-party members in urban China. This is a common finding in the literature of wage determination in urban China (see, for example, Knight and Song, 1999) The reason for such a premium, however, is not clear. The effect of party membership could be a measure of two different things: unobservable

human capital related characteristics or an individual's political position per se. Whatever it is capturing its effect on household income has increased significantly. In 1988 being a party member for husband and wife increase real PCHI by 3.5 and 6.4 per cent, respectively. The rate has since increased to 6.2 and 6.6 per cent in 1995, and further to 10.3 and 10.3 per cent in 1999. A household with both husband and wife being party members received 10 per cent more per capita income than households without any party member in 1988. This ratio increased to 13 per cent in 1995, and further to 20 per cent in 1999. This change is significant, especially from 1995 to 1999 with an increase in the return of 7 percentage points. Of course, one could argue that with decentralised labour market institutions, rate of returns to unobservable characteristics as captured by the party membership has gone up significantly. It is, however, also possible that party members receive more favourable treatment in 1999 than previously. At this stage it is impossible to disentangle the two effects.

The most important changes over the period of our study come about in the variables representing economic restructuring. The effects of unemployment and working in loss making firms on household income have changed considerably, though the change in the return to different sector of employment has not been very significant.

In 1988, there were hardly any unemployed individuals (3 per cent of the total labour force). Those who are coded as unemployed were either labour market new entrance, or those who took early retirement at the age before 55 so that they can give their jobs to their children. The majority of them belongs to the latter group and is mainly women. Among the total 547 unemployed individuals there are 76 per cent wives, 11 per cent husbands, and 13 per cent sons/daughters. Although taken early retirement, this group of individuals received relatively high pensions under the old social welfare system. These factors may be the reasons for the insignificant impact of husbands and sons/daughters being unemployed. The positive effect of wives being unemployed on real PCHI could due to that those wives who can afford to take early retirement are from families which are rich enough. The concept of 'working at a loss making firm' did not exist in 1988 and hence the survey did not ask such a question.

Things have taken a significant turn in 1995 when economic restructuring in the urban state sector started to accelerate. Thus, we observe a significant increase in the effect of economic restructuring on real PCHI variation. A household with a husband being unemployed has 9 per cent lower PCHI than a household without the husband being unemployed. The income reduction for households with wives or sons/daughters being

unemployed is at 10.5 and 7.5 per cent, respectively. In addition, working in loss making firms also reduce income substantially. A household with both husband and wife working in a loss-making firm receives 17.7 per cent less income than otherwise. Thus, working in a loss-making firm is equivalent to being laid off. The fact of the matter is that working in a loss-making firm is the first step towards being unemployed and in 1995 most layoff workers received similar pay as those who worked in the loss-making firms but had not yet been laid off.

By 1999 the radical urban state sector reform had been in place for about 4 to 5 years and the effect of such a reform on household income variation became even more sever than that in 1995. Households with husbands, wives, or sons/daughters being unemployed receive 29, 26, and 16 per cent less income, respectively, than households without these members being unemployed. These ratios are between doubled to tripled those observed in 1995. Such a significant change may reflect the change in the general economic situation. In 1995, most layoff workers were still paid by their previous enterprises. By 1999, many of these enterprises were bankrupted and the state sector layoff workers were re-assigned to the re-employment centre and were guaranteed a minimum living standard.

In addition to the increase in income loss due to unemployment between 1995 and 1999, the loss of income for households with husbands working in the loss making firms also increased. In 1995 the per capita income of those households was about 9 per cent less than households without husbands working in loss making firms, this ratio increased to 17 per cent.

As indicated at the end of Section 4 that the poorest 5 percentile of households has the most proportion of households with more than 1 unemployed members. It is, therefore, worthwhile to investigate in more detail how incomes of these households have been affected by the economic restructuring. Income reductions for households with various combinations of members being unemployed and working in loss-making firms are presented in Table 3.3. It shows that income reduction for households with two members being unemployed increased from 18 per cent in 1995 to 48 per cent in 1999. Other things being equal, if a household has both husband and wife being unemployed its real PCHI reduces by 19.4 per cent in 1995, but 54.4 per cent in 1999. If an additional member (son/daughter) also being unemployed the real PCHI reduces by 27 per cent in 1995 and 71 per cent in 1999.

**Table 3.3** Percentage of different types of households with unemployed members or members working in loss-making firms

| | 1988 | 1995 | | 1999 | |
|---|---|---|---|---|---|
| | % of HH | % of HH | Income reduction | % of HH | Income reduction |
| Total number of households | 8992 | 6597 | | 4493 | |
| HH without unemp. member | 93.06 | 87.07 | | 75.67 | |
| HH with one member being unemp. | 6.53 | 10.65 | 9.0% | 20.59 | 23.8% |
| HH with two members being unemp. | 0.38 | 2.09 | 17.9% | 3.65 | 47.5% |
| HH with three members being unemp. | 0.03 | 0.17 | 26.9% | 0.04 | 71.2% |
| HH with four members being unemp. | 0.00 | 0.01 | 35.8% | 0.04 | 95.0% |
| HH with HB being unemp. only | 0.49 | 3.50 | 8.9% | 5.45 | 28.8% |
| HH with WF being unemp. only | 4.37 | 5.23 | 10.5% | 11.84 | 25.6% |
| HH with S/D being unemp. only | 1.00 | 2.79 | 7.5% | 3.89 | 16.3% |
| HH with H&W being unemp. | 0.13 | 1.55 | 19.4% | 2.63 | 54.4% |
| HH with H&S/D being unemp. | 0.01 | 0.17 | 16.4% | 0.18 | 45.1% |
| HH with W&S/D being unemp. | 0.07 | 0.12 | 18.0% | 0.16 | 41.9% |
| HH with H&W&S/D being unemp. | 0.03 | 0.11 | 26.9% | 0.04 | 70.7% |
| HH with H work in LMFs | | 10.88 | 9.0% | 16.03 | 17.2% |
| HH with W work in LMFs | | 10.01 | 8.7% | 12.64 | 8.5% |
| HH with H&W work in LMFs | | 12.40 | 17.7% | 19.90 | 25.7% |
| Total HH with members work in LMFs. | | 33.29 | | 48.57 | |

**Note:** (1) The real per capita HH income equation is also estimated with a variable indicating the number of household members being unemployed for 1995 and 1999 data. The estimated coefficients are –0.0895 and –0.2376 for 1995 and 1999, respectively. The income reduction for the first panel of this table is calculated according to these estimates. (2) HH refers to household; HB is husband, WF is wife, and S/D is son/daughter, H&W is husband and wife, H&S/D is husband and son/daughter, and W&S/D is wife and son/daughter, H&W&S/D is husband, wife, and son/daughter.

Fortunately, not many households have three members being unemployed. Table 3.3 also presents the proportion of households with different number of individuals being unemployed and the demographic composition of the unemployment within households over the three survey years. It indicates that the majority of households with unemployed members are with only one members being unemployed in all three survey years. In addition, it is the women who bear the most consequence of the economic restructuring, especially in 1999 where the number of households with only the wife being unemployed is doubled that with only husband being unemployed (11.8 per cent vs. 5.5 per cent). The proportion of households with two members being unemployed increased from 1 per cent in 1988, to 2.1 per cent in 1995, and further to 3.7 per cent in 1999. Among them the proportion of households with both husband and wife being unemployed increased from 0.13, to 1.6, and further to 3.6 per cent over the three survey years. Only very limited number of household have more than two members being unemployed, even in 1999. The group of households with more than one member being unemployed deserves more government attention as they are least likely to cushion the economic restructuring effect within the households.

Table 3.3 also indicates that 'working in a loss making firm' may be a more wide spread phenomenon in comparison to being unemployed. In 1995 around 33 per cent of the total households has at least one member working in a loss-making firm, whereas this ratio increased to almost 49 per cent in 1999. Luckily, the income reduction for 'working in a loss-making firm' is not as sever as being unemployed in 1999.

The pattern on sector of employment does not seem to have a consistent trend. However, the superior position of the central state sector (the omitted category) over local state and private sectors seems to have eroded over time, especially when comparing 1995 to 1999. This may also indicate the effect of economic restructuring in the urban state sector.

With regard to the effect of household composition, there is a particularly interesting effect. The households that are headed by females have significantly higher income than those headed by males for 1995 and 1999. This is an uncommon result in studies of the determinants of household income for other countries, though Cameron (2000) also find similar phenomenon in Indonesia. In the case of urban China, this may be because that female-headed households are more likely to be less traditional and hence better educated households. Indeed, the average years of schooling per household labourer for the households with a female as the head is 10.5 years whereas for the household with a male as the head is 10.2 years in 1995. The figures for 1999 are 11 and 10.7 for female and male headed households, respectively.

Other household composition variables indicate that relative to working aged adults, households with higher proportion of young children have lower income, while households with more members older than 65 have higher income. Larger households have lower per capita income, while households with more labourers have higher income. These patterns are mainly consistent over the three survey years but the magnitudes of the coefficients become smaller in 1999.

The effect of regional income variation has been identified as the main contributing factor to the increase in income inequality between 1988 and 1995 in previous studies (see, for example, Gustafsson and Li, 1999; Khan and Riskin, 2000). It would be interesting to investigate whether it is still the case in the second half of the 1990s. The effect, however, is not easily compared across the three survey years. This is because the regional effect is represented by a group of dummy variables. The magnitude and the significance level of the coefficient of these dummy variables is affected by the choice of the omitted category (Jones,

1983). This will make the comparison of the magnitude of the coefficients across the three survey years meaningless. To evaluate the contribution of the regional difference to the income variations across the three survey years Table 3.4 reports three sets of adjusted $R^2$s, the first with the regional dummy variables only, the second without regional dummy variables, and the third will full set of variables (other variables and regional dummy variables). Once again, due to the difference in the number of provinces covered by 1988/1995 surveys as compared to the 1999 survey the results presented in Table 3.4 comprises of those from the full samples estimation (top panel, derived from results reported in Table 3.2) as well as those from the estimates of the consistent 6 province samples (bottom panel, derived from results reported in Appendix B).

**Table 3.4** Contribution of regional difference on income variations as measured by Adjusted $R^2$

| | 1988 | 1995 | 1999 |
|---|---|---|---|
| Adj. $R^2$ for reg. with regional dummies only (1) | 0.176 | 0.248 | 0.172 |
| Adj. $R^2$ for reg. without regional dummies (2) | 0.326 | 0.340 | 0.418 |
| Adj. $R^2$ for reg. with other variables & regional dummies (3) | 0.490 | 0.542 | 0.520 |
| Difference between rows (3) & (2) | 0.164 | 0.202 | 0.102 |
| Adj. $R^2$ for reg. with regional dummies only (5) | 0.116 | 0.204 | 0.172 |
| Adj. $R^2$ for reg. without regional dummies (6) | 0.381 | 0.423 | 0.418 |
| Adj. $R^2$ for reg. with other variables & regional dummies (7) | 0.446 | 0.534 | 0.520 |
| Difference between rows (7) & (6) | 0.065 | 0.111 | 0.102 |

The results reported in the top panel of Table 3.4 show that without including other explanatory variables regional effects accounted for 18, 25, and 17 per cent of the variation in the per capita household income for the full sample in 1988, 1995, and 1999, respectively. When restrict the sample to the 6 consistent provinces, the ratios changed to 12, 20, and 17 per cent for 1988, 1995, and 1999, respectively. Thus, the regional variation of the per capita household income is considerable without taken into account of the determinants of other variables, especially in 1995.

Once other explanatory variables are included, the extra explanatory power of the regional effect is 16, 20, and 10 per cent using the full sample for 1988, 1995, and 1999, respectively. If the consistent 6 province samples are used, the extra explanatory power provided by the regional effect is 7, 11, and 10 per cent for 1988, 1995, and 1999, respectively. These results show that although the effect of regional variation on income variation reduced when control for other variables, the effect is still strong. Furthermore, the regional effect explained the most income variation in 1995 and the effect is weaker for 1999 data.

## 2 Decomposition of contributing factors to the level of income inequality and its change over time

The analysis so far has sketched the effect of different factors on determining the variation of the household income and how they have changed over time. The actual proportion of the effect of each factor on income inequality, however, is not clear. In this sub-section we employ Fields' (1998) decomposition approach to quantify the degree to which the variables included in the income generating equation accounting for the level of income inequality. In particular, we are interested in identifying the relative importance of the impact of economic restructuring vs. regional effect on income inequality over the three survey years.

Table 3.5 reports the decomposition of the level of the inequality of the real per capita household income for the three years. The variables included in the estimated equation 4 (Table 3.2) are grouped into 5 contributing factors. The factor 'economic restructuring' includes the effect of husband, wife, and son/daughter being unemployed, husband and wife working in a loss-making firm, and their sector of employment. 'Regional effect' is the group of regional dummy variables. 'Party membership' includes the two dummy variables indicating if the husband or wife is a party member. 'Human capital' effect represents the average age of the household labourers, its squared term, and the average years of schooling of the household labourers. Finally, 'household composition' covers the effect of the gender of the household head, the young and old dependency ratios, the family size, and the number of labourers in the household.

Notice from Section 3 that the Fields' (1998) approach can only decompose the amount of income inequality explained by the variables included in the income regression, that is the proportion represented by $R^2$s. The rest of the inequality is due to the residual effect. Fortunately, our income generating equations have rather strong explanatory power. In the case of the full sample log real per capita household income equation, 49, 54, and 52 per cent of the variations are explained by our explanatory variables for the 1988, 1995, and 1999 data, respectively.

The first columns of each of the three years in Table 3.5 indicates the proportion of the total inequality of the log per capita household income accounted for by each of the 5 factors and the residual term. The second column of each of the three years takes the total explained portion (the $R^2$s) as 100 per cent and accounts each of the 5 contributing factors as the proportion of the total explained component. The top panel of Table 3.5 presents the

decomposition results using the estimates from the full sample The lower panel offers the results using the estimates from the consistent 6 provinces data.

**Table 3.5** Decomposition the level of per capita household income inequality

| | 1988 | | 1995 | | 1999 | |
|---|---|---|---|---|---|---|
| ***With full sample*** | $S_j$ | $P(S_j)$ | $S_j$ | $P(S_j)$ | $S_j$ | $P(S_j)$ |
| Restructuring | 1.66 | 3.39 | 7.16 | 13.20 | **20.27** | **39.00** |
| Of which: unemployment | 0.49 | 1.00 | 1.43 | 2.64 | 9.08 | 17.48 |
| loss making firm | 0.00 | 0.00 | 2.38 | 4.38 | 5.99 | 11.52 |
| sector of emp. | 1.17 | 2.39 | 3.35 | 6.18 | 5.20 | 10.01 |
| Regional effect | 17.13 | 34.96 | **22.63** | **41.73** | 13.60 | 26.16 |
| Party | 1.13 | 2.31 | 1.98 | 3.65 | 3.85 | 7.40 |
| Human capital | 2.88 | 5.87 | 6.41 | 11.82 | 7.12 | 13.69 |
| Sector of employment | 1.17 | 2.39 | 3.35 | 6.18 | 5.20 | 10.01 |
| Household composition | **26.20** | **53.47** | 16.05 | 29.60 | 7.15 | 13.75 |
| Total explained | 48.99 | 100.00 | 54.23 | 100.00 | 51.98 | 100.00 |
| Residual | 51.01 | | 45.77 | | 48.02 | |
| | 1988 | | 1995 | | 1999 | |
| ***With 6 provinces*** | Sj | P(Sj) | Sj | P(Sj) | Sj | P(Sj) |
| Restructuring | 1.73 | 3.73 | 10.59 | 19.83 | **20.27** | **39.00** |
| Of which: unemployment | 0.49 | 1.06 | 1.85 | 3.47 | 9.08 | 17.48 |
| loss making firm | 0.00 | 0.00 | 2.87 | 5.37 | 5.99 | 11.52 |
| sector of emp. | 1.24 | 2.67 | 5.87 | 11.00 | 5.20 | 10.01 |
| Regional effect | 9.98 | 21.57 | 15.43 | 28.88 | 13.60 | 26.16 |
| Party | 1.52 | 3.29 | 1.98 | 3.70 | 3.85 | 7.40 |
| Human capital | 3.62 | 7.83 | 7.69 | 14.39 | 7.12 | 13.69 |
| Sector of employment | 1.24 | 2.67 | 5.87 | 11.00 | 5.20 | 10.01 |
| Household composition | **29.42** | **63.58** | **17.73** | **33.20** | 7.15 | 13.75 |
| Total explained | 46.28 | 100.00 | 53.42 | 100.00 | 51.98 | 100.00 |
| Residual | 53.72 | | 46.58 | | 48.02 | |

The full sample decomposition indicates that the most important contributing factor to the income inequality has changed from 'household composition' in 1988 to 'regional effect' in 1995, and to the effect of 'economic restructuring' in 1999. In 1988 there is hardly any effect of economic restructuring on income inequality. In 1995, about 7 per cent of income inequality are due to the economic restructuring, of which, sector of employment accounted for about half of the effect. The effect of the economic restructuring increased to accounting for more than 20 per cent of the level of the income inequality in 1999. Of which, the effect of unemployment contributed to more than 9 per cent. This clearly indicates that economic restructuring has been increasingly playing a significant role in the level of income inequality over the period studied.

The regional effect has always been significant, but only in 1995 it is identified as the single factor which accounted for the most of the income inequality. This result is consistent with that found in Gustafsson and Li, (1999) and Khan and Riskin (2000). Other effects,

which have gained some grounds in 1999 relative to 1988 and 1995, are party membership and human capital effect but none of them played as significant role as the effect of economic restructuring.

Table 3.6 Decomposition of the contributing factors to the change in Gini coefficient, 1988-1995, and 1995-1999

| With full sample | 1988 Gini=0.234 $S_j(\ln Y)$ | 1995 Gini=0.282 $S_j(\ln Y)$ | 1999 Gini=0.313 $S_j(\ln Y)$ | Change 1988-1995 $\Pi_j$(Gini) | Change 1995-1999 $\Pi_j$(Gini) |
|---|---|---|---|---|---|
| Restructuring | 0.39 | 2.02 | 6.35 | 33.96 | **139.55** |
| Of which: unemployment | 0.11 | 0.40 | 2.84 | 6.02 | 78.70 |
| loss making firm | 0.00 | 0.67 | 1.87 | 13.97 | 38.82 |
| sector of emp. | 0.27 | 0.95 | 1.63 | 13.97 | 22.03 |
| Regional effect | 4.01 | 6.38 | 4.26 | **49.47** | -68.60 |
| Party | 0.26 | 0.56 | 1.20 | 6.11 | 20.84 |
| Human capital | 0.67 | 1.81 | 2.23 | 23.65 | 13.53 |
| Household composition | 6.13 | 4.53 | 2.24 | -33.40 | -73.86 |
| Residual | 11.94 | 12.91 | 15.03 | 20.21 | 68.54 |
| Total | 23.40 | 28.20 | 31.30 | 100.00 | 100.00 |
| **with 6 provinces data** | **1988 Gini=0.215 $S_j(\ln Y)$** | **1995 Gini=0.274 $S_j(\ln Y)$** | **1999 Gini=0.313 $S_j(\ln Y)$** | **Change 1988-1995 $\Pi_j$(Gini)** | **Change 1995-1999 $\Pi_j$(Gini)** |
| Restructuring | 0.37 | 2.90 | 6.35 | **42.91** | **88.27** |
| Of which: unemployment | 0.11 | 0.51 | 2.84 | 6.82 | 59.90 |
| loss making firm | 0.00 | 0.79 | 1.87 | 13.32 | 27.89 |
| sector of emp. | 0.27 | 1.61 | 1.63 | 22.78 | 0.47 |
| Regional effect | 2.15 | 4.23 | 4.26 | **35.26** | 0.73 |
| Party | 0.33 | 0.54 | 1.20 | 3.63 | 16.98 |
| Human capital | 0.78 | 2.11 | 2.23 | 22.50 | 3.09 |
| Household composition | 6.33 | 4.86 | 2.24 | -24.86 | -67.24 |
| Residual | 11.55 | 12.76 | 15.03 | 20.55 | 58.16 |
| Total | 21.50 | 27.40 | 31.30 | 100.00 | 100.00 |

The results obtained from the full sample decomposition, however, may not be accurate comparison across the three survey years because the number of provinces included in the surveys is different. Thus, it is possible that the relative significant impact of regional variation on income inequality in 1995 as compared to 1999 is due to the difference in the coverage of the provinces in the two samples. To eliminate this possibility the lower panel of Table 3.5 also reports the decomposition results derived from the estimated income generating equation with a consistent sample of 6 provinces for all three survey years. The basic conclusion indicated above does not change except that in 1995 the most important effect is now identified to be the household composition, though the contribution of regional effect is still larger in 1995 than in 1988 or 1999.

The above analysis identified the most important contributing factors to the level of income inequality in the 3 survey years. To what extent do these different factors contribute

to the increase in income inequality over the period? To quantify this we apply equation 3 to the results presented in Tables 3.1 and 3.5. Table 3.6 summarises the results for the change in Gini coefficients between 1988 to 1995, and between 1995 to 1999. The upper panel reports the results from the full sample decomposition and the lower panel reports the results from the consistent 6 province samples.

The results from the upper panel of Table 3.6 shows that regional effect contribute to 50 per cent of the increase in the Gini coefficient between 1988 and 1995, whereas the economic restructuring contribute to around 34 per cent of such an increase. Of which, unemployment accounted for 6 per cent, while household members working in a loss making firm or sector of employment each contributed to more than 13 per cent. Another important factor that contributes to the increase in income inequality between 1988 and 1995 is the human capital factor, which accounted for about one quarter of the increase in Gini coefficient. This finding is consistent with other studies indicating that the effect of labour market reform increased the rate of return to human capital in the 1990s (see, for example, Knight and Song, 1999; Meng, 2000).

During the period of 1995 to 1999 the main contributing factor to the increase in Gini coefficient is the factor of economic restructuring, which accounted for more than 100 per cent of such change while regional effect contributes to the reduction of Gini coefficient. Among the economic restructuring factor, unemployment contributes to 79 per cent of the increase in Gini coefficient, while working in loss making firms and sector of employment each contributed to 39 and 22 per cent, respectively. Thus, the single factors which accounted for the most increase in income inequality during the period 1995 to 1999 are unemployment and working in a loss making firm. Another important effect contributing to the increase in Gini coefficient during this period is party membership. Around one fifth of the increase in inequality can be explained by this factor. The reason that party membership increase income inequality is due to a sharp increase in the rate of return to party membership as there has been little change in the proportion of households with party member.[11]

Turning to the bottom panel of Table 3.6 we find a slight change in the decomposition results when the consistent 6 province samples are used. The economic restructuring becomes the most important factor to the increase in the Gini coefficient between 1988 and 1995 just

[11] See Appendix A for summary statistics of the data.

like during the 1995 to 1999 period. A close investigation, however, indicates a significant difference between the two periods. In the first period, the majority of the economic restructuring effect comes from the change in the sector of employment, whereas during the second period, it is the 'unemployment' and 'loss making firm' which dominate the effect. In addition, if we consider a single factor, 'regional effect' is still the most important effect contributing to the increase in the Gini coefficient during the 1988 to 1995 period. Hence, the qualitative conclusion drawn from the top and the bottom panels of Table 3.6 is basically consistent: the regional variation in income is the major contributing factor to the increase in Gini coefficient between 1988 and 1995 and the economic restructuring contributed the most to the increase in Gini coefficient during the period 1995 to 1999.

As noticed in Fields (1998), when decompose the change of income inequality over time, the results differ across different inequality index that was chosen. To ascertain that using different inequality index provide consistent qualitative results, we decompose two other inequality indices provided in Table 3.1 (standard deviation of logs and Theil entropy index). The results are provided in Appendix C and they are consistent with what we observe here.

It is, therefore, reasonable to conclude that the increase in inequality between 1988 and 1995 is mainly due to the increase in regional income variation, whereas the main contributing factor to the inequality increase between 1995 and 1999 is mainly the economic restructuring.

## 3.6 Conclusions

Income inequality has increased considerably over the period of the economic transition from a planned to a market oriented economy in urban China. This study investigated this change over two important phases of the economic transition: the initial stage of acceleration of the state sector and urban labour market reforms (1988 to 1995) and the period of radical reform in the state sector and the urban labour market (1995 to 1999). The attempt is made to identify the difference in the type of income inequality and the causes of the increase in inequality over these different phases of the economic transition. The main findings may be summarised as follows.

First, although income inequality increased during both of the two periods, the nature of these increases is different. In the first period everybody was made better off in real

termsand the increase in inequality is due to a relatively stronger income growth at the top end of the distribution. In the second period, however, the households at the lowest 5 percentile income distribution experienced an income reduction, while households at the top end of the distribution enjoyed significant income gains. Thus, in terms of social welfare, the increase in inequality in the first period was accompanied by an unambiguous increase in real income at every level of income distribution, whereas this is not the case in the second period. This may be the reason why the social stability issue became more of a concern since the late 1990s.

Second, while the increase in income inequality in the first period is mainly due to the increase in regional income variations, such effect is dominated by the impact of economic restructuring in the second period.

Third, in the second period, not only the proportion of households with unemployed members but also the reduction in income due to unemployment increased considerably. The increase in two effects contributed to more than 78 per cent of increase in the Gini coefficient over the period of 1995 to 1999. In addition, households with members working at loss making firms also contributed considerably to the increase in income inequality in this period.

Fourth, the interesting issue, though, is that not all households with unemployed members fall into poverty. While around 40 per cent of such households have income at or below the 20th percentile, nearly 11 per cent of households with unemployed members received income above the 70th percentile. This difference may have a lot do to with the concentration of unemployed members within each household. Indeed, although only 3.7 per cent of household in 1999 have more than one member being unemployed, our estimates indicate that on average these households earned more than 50 per cent less real PCHI than other households, *ceteris paribus*. The significant effect of unemployment concentration on income reduction, and hence, income inequality suggests that, to a large extent, some of the unemployment effect may be cushioned by within household income transfers. It is those households whose members are unable to compensate each other are more likely to suffer from sever income reduction due to the economic restructuring. Therefore, the households that deserve more help from the government may be the ones which have more than one member being unemployed.

What remain unclear from the current study is whether those who fall into the poverty because of the economic restructuring will remain in that position for long and how long

before they can move out of the low income group. To examine this issue duration of unemployment and its impact of income distribution have to be investigated.

Another equally important issue is related to the long-term trend of income inequality in urban China. Economic restructuring is a transitory phenomenon. Once the economic restructuring is over, will income inequality reverse back to a more equal level?

The answer to this question is probably no. The reason is two fold. First, the equal distribution of income during the pre-reform era and the era of the beginning of the reform is mainly the result of compressed earnings structure. This earnings structure has changed and is continuing to change towards a system where the earnings gap between skilled and unskilled workers will be enlarged to reflect market demand of and supply for the skilled and unskilled workers. This is indicated by our finding that over the period of 1988 to 1999 human capital related factors have contributed considerably to the income inequality in urban China.

Second, the current large-scale unemployment in urban China, to a large extent, is the result of the still inflexible urban labour market. There are jobs in urban China. At any point in time there are more than 50 million rural migrants working in urban China. The state sector layoff workers, however, have been unwilling to take them as these are low paid and low status jobs. As labour market reform further proceeds and the urban layoff workers psychologically adjust themselves towards the new market environment, more and more urban unemployed workers will accept low paying jobs. Once that happens, unemployment will reduce while income inequality may remain the current level or even increase.

## Appendix A: Summary Statistics of the Data

| | 1988 | | | | 1995 | | | | 1999 | |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Incl. HH with miss. V.*** | Mean | S Dev. | Mean | S Dev. | Mean | S Dev. | Mean | S Dev. | Mean | S Dev. |
| Real PCHI | 1398.23 | 681.78 | | | 2124.81 | 1283.65 | | | 2646.61 | 1666.79 |
| Log(Real PCHI) | 7.15 | 0.42 | | | 7.53 | 0.51 | | | 7.71 | 0.60 |
| Real HI | 4735.71 | 2305.39 | | | 6400.27 | 3793.27 | | | 7698.92 | 5023.48 |
| Log(RHI) | 8.37 | 0.43 | | | 8.64 | 0.50 | | | 8.78 | 0.61 |
| No. of observations | 8992 | | | | 6930 | | | | 4493 | |
| | 1988 | | | | 1995 | | | | 1999 | |
| | 11 provinces | | 6 provinces | | 11 provinces | | 6 provinces | | 6 provinces | |
| ***Excl. HH with miss. V.*** | Mean | S Dev. | Mean | S Dev. | Mean | S Dev. | Mean | S Dev. | Mean | S Dev. |
| Real PCHI | 1390.20 | 649.20 | 1371.15 | 585.47 | 2125.89 | 1281.31 | 2101.90 | 1251.85 | 2628.91 | 1637.31 |
| Log(Real PCHI) | 7.15 | 0.41 | 7.15 | 0.37 | 7.53 | 0.50 | 7.52 | 0.50 | 7.71 | 0.59 |
| Real HI | 4887.84 | 2273.31 | 4722.18 | 1957.40 | 6516.77 | 3813.12 | 6341.71 | 3345.46 | 7894.22 | 5101.90 |
| Log(RHI) | 8.41 | 0.39 | 8.39 | 0.36 | 8.66 | 0.48 | 8.64 | 0.47 | 8.81 | 0.59 |
| Av. age of HH labour | 37.70 | 7.69 | 37.69 | 7.87 | 41.59 | 8.76 | 41.95 | 8.72 | 42.28 | 8.29 |
| (Av. age of HH labour)$^2$ | 1480.71 | 620.77 | 1482.73 | 639.49 | 1806.15 | 789.89 | 1835.87 | 792.18 | 1855.85 | 753.72 |
| Av. years of sch. of HH L | 10.54 | 2.52 | 10.68 | 2.47 | 10.34 | 2.72 | 10.39 | 2.71 | 10.78 | 2.42 |
| H party membership | 0.40 | 0.49 | 0.39 | 0.49 | 0.40 | 0.49 | 0.38 | 0.49 | 0.39 | 0.49 |
| W party membership | 0.13 | 0.33 | 0.14 | 0.35 | 0.16 | 0.37 | 0.17 | 0.38 | 0.19 | 0.39 |
| H being unemployed | 0.01 | 0.08 | 0.01 | 0.08 | 0.05 | 0.23 | 0.05 | 0.22 | 0.09 | 0.29 |
| W being unemployed | 0.05 | 0.21 | 0.05 | 0.23 | 0.07 | 0.25 | 0.07 | 0.25 | 0.16 | 0.36 |
| 2$^{nd}$ gen. being unemp. | 0.01 | 0.10 | 0.01 | 0.07 | 0.03 | 0.17 | 0.03 | 0.17 | 0.04 | 0.19 |
| H working in LMFs | | | | | 0.23 | 0.42 | 0.24 | 0.43 | 0.33 | 0.47 |
| W working in LMFs | | | | | 0.24 | 0.43 | 0.25 | 0.43 | 0.36 | 0.48 |
| H work in local SOEs | 0.39 | 0.49 | 0.42 | 0.49 | 0.54 | 0.50 | 0.54 | 0.50 | 0.43 | 0.50 |
| H work in collectives | 0.12 | 0.33 | 0.14 | 0.35 | 0.10 | 0.30 | 0.11 | 0.31 | 0.09 | 0.28 |
| H work in private sector | 0.01 | 0.12 | 0.01 | 0.09 | 0.02 | 0.14 | 0.02 | 0.14 | 0.08 | 0.28 |
| H did not report sector | 0.04 | 0.20 | 0.04 | 0.21 | 0.02 | 0.14 | 0.02 | 0.15 | 0.01 | 0.09 |
| W work in local SOEs | 0.31 | 0.46 | 0.30 | 0.46 | 0.48 | 0.50 | 0.48 | 0.50 | 0.40 | 0.49 |
| W work in collectives | 0.22 | 0.41 | 0.25 | 0.43 | 0.19 | 0.39 | 0.20 | 0.40 | 0.17 | 0.37 |
| W work in private sector | 0.02 | 0.15 | 0.02 | 0.13 | 0.02 | 0.15 | 0.02 | 0.14 | 0.08 | 0.27 |
| W did not report sector | 0.13 | 0.33 | 0.14 | 0.34 | 0.07 | 0.26 | 0.06 | 0.24 | 0.06 | 0.23 |
| Male as the HH head | 0.96 | 0.19 | 0.95 | 0.22 | 0.69 | 0.46 | 0.69 | 0.46 | 0.71 | 0.45 |
| % of kids aged 0-5 | 0.06 | 0.12 | 0.06 | 0.12 | 0.04 | 0.10 | 0.03 | 0.10 | 0.03 | 0.09 |
| % of kids aged 6-10 | 0.09 | 0.14 | 0.08 | 0.14 | 0.06 | 0.13 | 0.06 | 0.12 | 0.05 | 0.11 |
| % of kids aged 11-16 | 0.09 | 0.14 | 0.07 | 0.14 | 0.08 | 0.14 | 0.08 | 0.14 | 0.07 | 0.13 |
| % of elderly | 0.03 | 0.08 | 0.03 | 0.09 | 0.04 | 0.14 | 0.05 | 0.14 | 0.06 | 0.16 |
| Household size | 3.65 | 0.98 | 3.59 | 0.97 | 3.19 | 0.80 | 3.16 | 0.79 | 3.09 | 0.75 |
| No. of lab. in the HH | 2.15 | 0.69 | 2.15 | 0.70 | 2.23 | 0.67 | 2.24 | 0.67 | 2.19 | 0.68 |
| Liaoning | 0.10 | 0.31 | 0.23 | 0.42 | 0.10 | 0.30 | 0.19 | 0.39 | 0.17 | 0.37 |
| Jiangsui | 0.13 | 0.33 | 0.27 | 0.45 | 0.11 | 0.32 | 0.20 | 0.40 | 0.16 | 0.37 |
| Henan | 0.11 | 0.32 | 0.25 | 0.43 | 0.09 | 0.28 | 0.16 | 0.37 | 0.18 | 0.38 |
| Sichuan | 0.00 | 0.04 | 0.00 | 0.06 | 0.12 | 0.32 | 0.22 | 0.41 | 0.20 | 0.40 |
| Gansu | 0.07 | 0.25 | 0.14 | 0.35 | 0.06 | 0.23 | 0.11 | 0.31 | 0.15 | 0.36 |
| Shanxi | 0.11 | 0.31 | | | 0.10 | 0.29 | | | | |
| Anhui | 0.09 | 0.29 | | | 0.07 | 0.26 | | | | |
| Hubei | 0.11 | 0.31 | | | 0.11 | 0.31 | | | | |
| Guangdong | 0.11 | 0.32 | | | 0.08 | 0.27 | | | | |
| Yunnan | 0.11 | 0.31 | | | 0.09 | 0.29 | | | | |
| No. of observations | 8101 | | 3712 | | 6363 | | 3503 | | 4002 | |

## Appendix B:

Determinants of real per capita household disposable income
for consistent 6 province sample, 1988, 1995, and 1999

| | 1988 | | 1995 | | 1999 | |
|---|---|---|---|---|---|---|
| | Coef. | T-Ratio | Coef. | T-Ratio | Coef. | T-Ratio |
| Constant | 7.6902 | 74.18 | 7.4727 | 48.47 | 7.7957 | 44.13 |
| Average age of HH labour | -0.0142 | -2.73 | 0.0234 | 3.37 | 0.0113 | 1.41 |
| (Average age of HH labour)$^2$ | 0.0002 | 3.52 | -0.0002 | -2.77 | -0.0001 | -0.90 |
| Average years of schooling of HH L | 0.0177 | 8.79 | 0.0344 | 14.45 | 0.0442 | 14.35 |
| H party membership | 0.0608 | 5.97 | 0.0702 | 5.51 | 0.1034 | 7.11 |
| W party membership | 0.0431 | 3.06 | 0.0477 | 2.92 | 0.1029 | 5.73 |
| H being unemployed | 0.0456 | 0.76 | -0.1037 | -3.69 | -0.2880 | -11.86 |
| W being unemployed | 0.1317 | 5.27 | -0.1135 | -4.60 | -0.2558 | -12.66 |
| 2$^{nd}$ generation being unemp. | 0.0986 | 1.58 | -0.0977 | -2.77 | -0.1627 | -4.58 |
| H working in loss-making firm | | | -0.1014 | -6.44 | -0.1717 | -10.39 |
| W working in loss making firm | | | -0.0833 | -5.36 | -0.0846 | -5.10 |
| H working in local SOEs | -0.0307 | -2.34 | -0.1038 | -6.61 | -0.0790 | -4.42 |
| H working in collectives | -0.0734 | -4.45 | -0.1746 | -7.55 | -0.1427 | -5.14 |
| H working in private sector | 0.0579 | 1.13 | -0.0602 | -1.36 | -0.0038 | -0.14 |
| H did not report sector | 0.0900 | 3.30 | 0.0145 | 0.33 | -0.2693 | -3.60 |
| W working in local SOEs | 0.0030 | 0.21 | -0.0446 | -2.54 | -0.0145 | -0.74 |
| W working in collectives | -0.0614 | -4.18 | -0.1037 | -5.04 | -0.1129 | -4.76 |
| W working in private sector | -0.0400 | -1.12 | -0.1639 | -3.64 | -0.0723 | -2.49 |
| W did not report sector | -0.0595 | -3.06 | -0.2254 | -7.57 | -0.2684 | -8.04 |
| Male as the household head | 0.0053 | 0.24 | -0.0430 | -3.27 | -0.0444 | -2.96 |
| % of kids aged 0-5 | -0.4403 | -9.00 | -0.2637 | -3.24 | -0.2252 | -2.36 |
| % of kids aged 6-10 | -0.2875 | -6.63 | -0.0580 | -0.94 | -0.0343 | -0.49 |
| % of kids aged 11-16 | -0.3779 | -8.56 | -0.0520 | -0.97 | -0.1601 | -2.74 |
| % of elderly | 0.1311 | 2.27 | 0.2053 | 3.85 | 0.1687 | 2.88 |
| Household size | -0.2142 | -32.80 | -0.2749 | -23.27 | -0.1905 | -13.98 |
| Number of labourers in the hh | 0.1971 | 19.65 | 0.1905 | 13.46 | 0.1378 | 9.38 |
| Liaoning | -0.0506 | -2.85 | -0.3084 | -14.39 | -0.4904 | -20.64 |
| Jiangsui | -0.0216 | -1.22 | -0.0465 | -2.18 | -0.1663 | -6.92 |
| Henan | -0.2932 | -17.30 | -0.4602 | -20.64 | -0.5309 | -22.61 |
| Sichuan | -0.0142 | -0.05 | -0.2803 | -13.35 | -0.4499 | -19.67 |
| Gansu | -0.1371 | -7.21 | -0.4849 | -19.46 | -0.5093 | -20.66 |
| Number of observations | 3701 | | 3503 | | 4002 | |
| Adjusted $R^2$ | 0.4587 | | 0.5301 | | 0.5162 | |
| $R^2$ | 0.4628 | | 0.5341 | | 0.5198 | |

**Note**: The central state owned enterprises sector and Beijing are used as the omitted category for the sector of employment and region, respectively.

## Appendix C:

Decomposition of the contributing factors to the change in inequality indices, 1988-1995, and 1995-1999

| | Standard Deviation of Logs | | Theil Entropy | |
|---|---|---|---|---|
| With full sample | Change 1988-1995 $\Pi_i$(SD. log) | Change 1995-1999 $\Pi_i$(SD. log) | Change 1988-1995 $\Pi_i$(Theil) | Change 1995-1999 $\Pi_i$(Theil) |
| Restructuring | 34.45 | 89.52 | 19.56 | 93.70 |
| Of which: unemployment | 6.11 | 49.50 | 3.56 | 51.94 |
| work in LMFs | 14.18 | 25.05 | 7.74 | 26.20 |
| sector of emp. | 14.17 | 14.97 | 8.27 | 15.56 |
| Regional effect | 49.97 | -34.12 | 35.05 | -37.00 |
| Party | 6.19 | 13.71 | 3.89 | 14.31 |
| Human capital | 23.96 | 10.84 | 14.39 | 11.06 |
| Household composition | -34.31 | -39.88 | -6.83 | -42.72 |
| Residual | 19.74 | 59.93 | 33.94 | 60.65 |
| Total | 100.00 | 100.00 | 100.00 | 100.00 |
| with 6 provinces data | Change 1988-1995 $\Pi_i$(SD. log) | Change 1995-1999 $\Pi_j$(SD. log) | 1988 SD. log=0.392 $\Pi_i$(Theil) | 1995 SD. log=0.500 $\Pi_i$(Theil) |
| Restructuring | 42.78 | 67.26 | 25.43 | 57.56 |
| Of which: unemployment | 6.80 | 44.20 | 4.13 | 36.95 |
| work in LMFs | 13.28 | 21.12 | 7.67 | 18.00 |
| sector of emp. | 22.71 | 1.94 | 13.64 | 2.61 |
| Regional effect | 35.18 | 4.71 | 24.54 | 6.54 |
| Party | 3.63 | 12.92 | 2.74 | 11.05 |
| Human capital | 22.44 | 4.34 | 14.49 | 4.91 |
| Household composition | -24.69 | -44.25 | -1.83 | -33.65 |
| Residual | 20.65 | 55.02 | 34.63 | 53.58 |
| Total | 100.00 | 100.00 | 100.00 | 100.00 |

# 4
# IDENTIFYING THE MOST VULNERABLE GROUPS

## 4.1 Introduction

When an economic shock hits the society, not everybody or every household will fall into poverty. As stated in the last chapter, during the significant economic restructuring in urban China in the late 1990s the most significant determinant of household income reduction is unemployment. In addition, not all households with unemployed member become poor, but only those whose household have more than one member being unemployed.

In this chapter we take one step further to investigate who are more likely to become unemployed, what kind of households are more likely to be poor, and what kind of households are more likely to have more than one member being unemployed (in this chapter they will also be refereed to as "vulnerable households"). An understanding of these issues will help us to identify the most vulnerable group and to evaluate if government policies towards layoff workers have aimed at the right target and how these policies can be fine-tuned so that the maximum effect can be achieved.

## 4.2 Model specification

To identify who are more likely to be unemployed we estimate a probit model of unemployment. Let $Prob(UE_i)$ be the probability of individual $i$ being unemployed, the reduced form of the unemployment model may be specified as follow:

$$Prob(UE_i = 1) = f_i(age_i, sage_i, edu_i, party_i, loss_i, health_i, sector_i, sex_i, region_i) \quad (4.1)$$

where *sage* is a squared term of age; *edu* is years of schooling; *party* presents whether individual *i* is a party member or not; *health* indicates whether the individual is healthy; *loss* specifies if the individual works in a loss-making firm; sector is sector of employment; and region refers to a group of regional dummy variables. Both loss and sector refers to the individual's previous employment affiliation if the individual is unemployed. Equation (4.1) is estimated for all individuals aged 16-65 who are in the labour force.

In addition, we also estimate probit models to discover the characteristics of poor households and households which are more likely to have more than one member being unemployed.

The 'poor' households are defined as those whose real PCHI is at the bottom two deciles of the income distribution. The dependent variable, *POOR*, is equal to one if the household has an income in the bottom two deciles, and zero otherwise. The dependent variable for households with more than one unemployed members, *MUE*, is equal to one if a household has more than one member being unemployed, zero otherwise. Thus, the probit model is defined as:

$$Prob(Y_j = 1) = \Phi_j(\beta' X_j) \quad (4.2)$$

where Y is the dependent variable (*POOR* or *MUE*), the subscript *j* indicating household, *X* is a vector of variables which determine *POOR* or *MUE*. The variables included in the POOR equation are the same as those included in the PCHI equation (equation 3.4) except the variable on unemployment is measured as the number of members who are unemployed within the household. The variables included in the *MUE* equation are similar to that included in equation 4.1, except that most variables are measured at the household level or reflect both husband and wife's situation. These variables are: average age of household labourers and its squared term, average years of schooling of the household labourers, whether the husband and wife are party members, their health condition, whether they are working at loss making firm (for those who are unemployed this variable indicate their previous enterprise affiliation), their sector of employment, and region of resident.

Once again the data used are from the 1995 and 1999 Household Income and Expenditure surveys used in the previous chapter. Estimated results from the two surveys will provide some interesting comparison as to how things has changed along with the deepening of the economic restructuring with respect to the vulnerability of individuals and households who have been through the restructuring process.

## 4.3 Who are more likely to be unemployed

The estimated results of equation 4.1 using the 1995 UIES and 1999 UIEES data sets are reported in Table 4.1. The three columns report the results for the total sample, and the male and female samples, respectively. The omitted category for the employment sector is the private sector, which is defined as a combination of the local private, foreign owned, joint venture, and self-employed sectors.

Over this five-year period, unemployment increased from 8.5 to 17.3 per cent. Table 4.1 indicates that this change is related to particular variables. First, gender was not an

important determinant of being unemployed/displaced in 1995, if anything, females are slightly less likely to be unemployed. In 1999 women are significantly more likely to be unemployed.

**Table 4.1** Results from probit estimation of unemployment

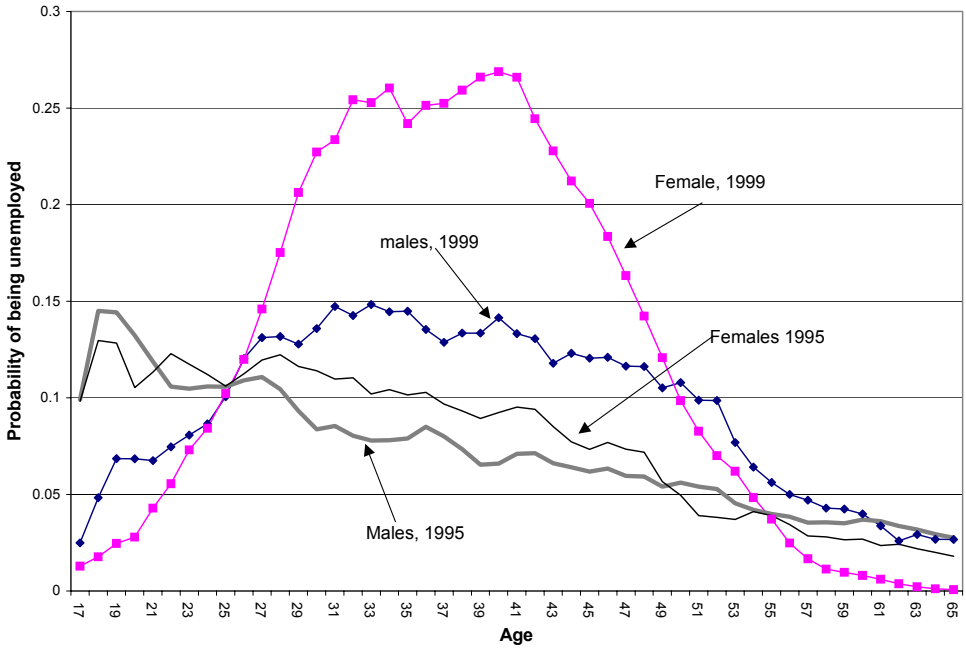
| | Total sample | | Males | | Females | |
|---|---|---|---|---|---|---|
| 1995 | Marginal effect | T-Ratios | Marginal effect | T-Ratios | Marginal effect | T-Ratios |
| Age | -0.0018 | -11.95 | -0.0014 | -7.44 | 0.0028 | 2.09 |
| $Age^2$ | | | | | -0.0001 | -3.84 |
| Years of schooling | -0.0049 | -8.20 | -0.0050 | -6.60 | -0.0053 | -5.80 |
| Dummy for being healthy | -0.0181 | -1.55 | 0.0059 | 0.43 | -0.0358 | -2.06 |
| Dummy for party member | -0.0178 | -4.35 | -0.0126 | -2.65 | -0.0252 | -3.67 |
| Dummy for work in LMFs | 0.1350 | 26.79 | 0.1202 | 17.80 | 0.1415 | 19.37 |
| Central state sector | -0.0465 | -8.50 | -0.0511 | -7.31 | -0.0419 | -5.06 |
| Local state sector | -0.0543 | -7.74 | -0.0601 | -6.60 | -0.0492 | -4.68 |
| Collective sector | -0.0210 | -3.74 | -0.0234 | -3.73 | -0.0171 | -1.87 |
| Dummy for male | 0.0044 | 1.49 | | | | |
| Regional dummies | Yes | | Yes | | Yes | |
| Number of obs. | 14196 | | 7027 | | 6958 | |
| Pseudo $R^2$ | 0.2191 | | 0.2271 | | 0.2338 | |
| | Total sample | | Males | | Females | |
| 1999 | Marginal effect | T-Ratios | Marginal effect | T-Ratios | Marginal effect | T-Ratios |
| Age | 0.0194 | 10.03 | 0.0088 | 3.99 | 0.0325 | 9.88 |
| $Age^2$ | -0.0003 | -11.89 | -0.0001 | -5.08 | -0.0005 | -11.12 |
| Years of schooling | -0.0059 | -5.34 | -0.0071 | -5.10 | -0.0050 | -3.15 |
| Dummy for being healthy | -0.0286 | -2.64 | -0.0485 | -3.02 | -0.0167 | -1.18 |
| Dummy for party member | -0.0413 | -6.06 | -0.0288 | -3.53 | -0.0516 | -5.07 |
| Dummy for work in LMFs | 0.1802 | 25.47 | 0.1609 | 16.57 | 0.1805 | 18.99 |
| Central state sector | -0.0426 | -5.24 | -0.0426 | -4.17 | -0.0392 | -3.38 |
| Local state sector | -0.0020 | -0.26 | -0.0168 | -1.68 | 0.0128 | 1.12 |
| Collective sector | 0.0362 | 3.51 | 0.0209 | 1.55 | 0.0491 | 3.42 |
| Dummy for male | -0.0134 | -2.62 | | | | |
| Regional dummies | Yes | | Yes | | Yes | |
| Number of obs. | 9378 | | 4615 | | 4763 | |
| Pseudo $R^2$ | 0.2417 | | 0.222 | | 0.2677 | |

Second, middle aged individuals have a much higher chance of becoming unemployed in 1999 than in 1995, especially for women.[12] Due to the quadratic term of the variable, it is difficult to 'read' the implications of the marginal effect. Instead, I summarise the results by predicting the change of probability of being unemployed at different ages. Figure 4.1 provides average predicted probability of being unemployed for each age group for male and female samples separately. It shows clearly that it is the middle aged women

[12] The quadratic term for age is not statistically significant for the total and male samples of the 1995 data, and hence is excluded from the regressions.

who suffered the most in 1999. The reason for the reduction of the probability of being unemployed reduces after age 40 to 45 may reflect the fact that many of older women have taken early retirement. Figure 4.1 also indicates that in 1995 the probability of being unemployed does not differ much for men and women, whereas in 1999 a significant gender difference is observed, especially for middle aged individuals.

**Figure 4.1** Average predicted probability of being unemployed for different age groups




Third, although less educated individuals have always been the group that suffered the most from the economic restructuring in terms of unemployment, this effect is especially strong for males in 1999. In 1995 additional year of schooling reduces the chance to become unemployed by 0.5 per cent of probability whereas this ratio increased to 0.7 per cent for men in 1999.

Fourth, the effects of party membership and working in a loss making firm on unemployment have both increased. The more important change, though, is the effect of individuals' health condition. In 1995 it only affected the probability of women being unemployed. In 1999 it became a significant determinant of unemployment for men.[13]

[13] The health variable is measured differently for the two data sets. In 1999 survey a direct question is asked about whether an individual thinks his/her health condition is healthy, not healthy, disabled, or other. This question is not asked in the 1995 survey. The information on sick leave and health expenditure, however is available in the 1995 survey. We, therefore, defined dummy variable for healthy as having less than 30 days sick leave or less than 500 Yuan health expenditure.

Fifth, the effect of the sector of employment on unemployment has changed. Individuals who were previously employed in the collective-sector had less or no more chance of becoming unemployed than those employed in the private sector in 1995. By 1999 the chance of an employee who worked in the collective sector being made redundant has become much higher than that of their counterparts in the private sector.

Finally, regional effect on unemployment was much significant in 1995 than in 1999. A simple test indicates that in 1995 regional effect explains around 4 per cent of the probability of individuals being unemployed, whereas this ratio is only around 1.3 per cent in 1999.

These results coincide very well with our expectations. Since 1995, more and more middle aged women have been made redundant. In addition, as the radical enterprise reforms occurred mostly in small and median sized enterprises, and as these enterprises are concentrated mostly in the collective sectors, unemployment is now more likely to happen in this sector than in the private sector. Hence, it may be summarised that less educated, middle aged, none party members, who work in a loss making firm and/or collective sector are more likely to be unemployed. This is more so for women than for men.

## 4.4 The most vulnerable households to the economic restructuring

As discussed in Chapter 3, the households which are the most likely to fall into the bottom 20 percentile of the income distribution in 1999 are those which have more than one household members being unemployed. In this section we identify the characteristics of the households who fall into the bottom 20 percentile of the income distribution, and those who are more likely to have more than one member being unemployed.

Table 4.2 reports the estimated results for the *POOR* equation. The age only have linear effect and hence the quadratic term is dropped. Interestingly, we find that young households are more likely to be poor, this not only indicated by the age variable but also by the household composition variables. Households with young children are more likely to be poor.

Number of household members being unemployed has very significant effect on whether a household is poor or not, especially in 1999. Indeed, one extra member being unemployed increase the probability of the household become ‘poor’ by 5 per cent in 1995 and by 11 per cent in 1999. This finding is consistent with that found in Chapter 3.

Table 4.2 Selected results from probit estimation of the determinants for being a poor household

| | 1995 | | 1999 | |
|---|---|---|---|---|
| | marginal effect | t-ratio | marginal effect | t-ratio |
| Average age of HH labour | -0.0017 | -2.65 | -0.0027 | -3.14 |
| Average years of schooling of HH L | -0.0190 | -10.78 | -0.0205 | -7.72 |
| Number of members unemployed | 0.0468 | 5.65 | 0.1093 | 12.27 |
| Gender of the HH head | 0.0146 | 1.66 | 0.0126 | 1.08 |
| H working in loss-making firm | 0.0327 | 3.11 | 0.0765 | 6.27 |
| W working in loss making firm | 0.0512 | 4.75 | 0.0384 | 3.19 |
| H working in local SOEs | 0.0581 | 5.35 | 0.0506 | 3.44 |
| H working in collectives | 0.1428 | 7.25 | 0.0780 | 3.37 |
| H working in private sector | 0.0900 | 2.52 | 0.0391 | 1.71 |
| H did not report sector | 0.0231 | 0.72 | 0.0930 | 1.47 |
| W working in local SOEs | 0.0414 | 3.11 | 0.0079 | 0.46 |
| W working in collectives | 0.0817 | 4.81 | 0.0637 | 3.05 |
| W working in private sector | 0.1439 | 3.95 | 0.0598 | 2.34 |
| W did not report sector | 0.2226 | 8.57 | 0.2300 | 6.91 |
| H party membership | -0.0506 | -5.87 | -0.0640 | -5.66 |
| W party membership | -0.0320 | -2.70 | -0.0539 | -3.61 |
| % of kids aged 0-5 | 0.3486 | 8.23 | 0.2344 | 3.88 |
| % of kids aged 6-10 | 0.2409 | 7.05 | 0.0782 | 1.62 |
| % of kids aged 11-16 | 0.1690 | 5.43 | 0.1427 | 3.60 |
| % of elderly | 0.0242 | 0.70 | -0.0128 | -0.30 |
| Household size | 0.0851 | 16.36 | 0.0462 | 6.34 |
| Region | Yes | | Yes | |
| Number of observations | 6223 | | 3904 | |
| Pseudo $R^2$ | 0.32 | | 0.31 | |

Working in loss making firm and not working in the central state sector both increase one's chance to be poor, while being party member reduces the chance. Large households are more likely to be poor.

In general, the results presented in Table 4.2 are consistent with that reported in Table 3.2. After all, these are similar equations estimated from different angles.

If having more members being unemployed is a very important determinant for being poor, we need to know the characteristics of such households. The estimated results from the probit model of *MUR* are reported in Table 4.3. The results indicate that there have been some significant changes as to the type of households which are more likely to have more than one member being unemployed over the period of 1995 to 1999. Controlling for household size, the only significant determinants in 1995 are 'education' and 'loss-making firm'. In 1999, however, 'age', 'party membership', 'sector of employment', and 'region of resident' all become significant determinants as well.

Less educated households have a higher incidence of having more than one member

being unemployed, and a higher incidence of working in a loss making firm. These effect are the same for both years.

**Table 4.2** Determinants of the vulnerable households

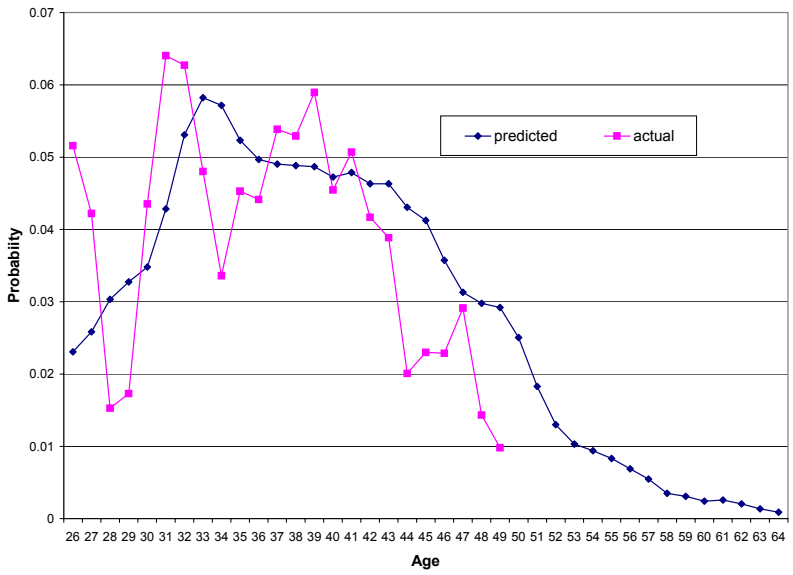
| | 1995 (11 provinces) | | 1995 (6 provinces) | | 1999 | |
|---|---|---|---|---|---|---|
| | Marginal effect | T-Ratio | Marginal effect | T-Ratio | Marginal effect | T-Ratio |
| Household size | 0.0062 | 4.27 | 0.0054 | 2.93 | 0.0057 | 2.72 |
| Average age of HH labour | -0.0011 | -0.96 | -0.0018 | -1.29 | 0.0052 | 2.22 |
| (Average age of HH labour)$^2$ | 0.0000 | 0.43 | 0.0000 | 0.97 | -0.0001 | -2.48 |
| Average years of schooling of HH L | -0.0022 | -4.17 | -0.0021 | -3.08 | -0.0017 | -2.05 |
| H party membership | -0.0033 | -1.23 | -0.0042 | -1.20 | -0.0062 | -1.67 |
| W party membership | 0.0002 | 0.06 | -0.0032 | -0.66 | -0.0123 | -2.58 |
| H working in loss-making firm | 0.0210 | 5.55 | 0.0213 | 4.21 | 0.0190 | 4.42 |
| W working in loss making firm | 0.0144 | 4.12 | 0.0072 | 1.78 | 0.0112 | 2.81 |
| H working in local SOEs | 0.0025 | 0.72 | -0.0023 | -0.53 | -0.0015 | -0.32 |
| H working in collectives | 0.0079 | 1.52 | 0.0004 | 0.08 | 0.0249 | 2.97 |
| H working in private sector | -0.0023 | -0.27 | -0.0012 | -0.10 | 0.0196 | 2.24 |
| H did not report sector | -0.0014 | -0.15 | 0.0058 | 0.48 | -0.0002 | -0.01 |
| W working in local SOEs | 0.0015 | 0.36 | 0.0055 | 0.95 | 0.0224 | 3.30 |
| W working in collectives | 0.0052 | 1.05 | 0.0181 | 2.23 | 0.0318 | 3.40 |
| W working in private sector | -0.0037 | -0.47 | | | 0.0225 | 2.04 |
| W did not report sector | 0.0052 | 0.77 | 0.0095 | 0.95 | 0.0038 | 0.40 |
| H being healthy | | | | | -0.0117 | -1.68 |
| W being healthy | -0.0103 | -0.57 | -0.0167 | -0.81 | -0.0030 | -0.54 |
| Liaoning | 0.0062 | 0.69 | 0.0055 | 0.68 | -0.0036 | -0.56 |
| Jiangsui | 0.0032 | 0.38 | 0.0015 | 0.21 | -0.0050 | -0.75 |
| Henan | 0.0025 | 0.29 | 0.0028 | 0.34 | 0.0150 | **1.86** |
| Sichuan | 0.0026 | 0.32 | 0.0026 | 0.34 | 0.0237 | **2.81** |
| Gansu | 0.0035 | 0.37 | 0.0031 | 0.36 | 0.0251 | **2.65** |
| Shanxi | 0.0076 | 0.80 | | | | |
| Anhui | 0.0064 | 0.67 | | | | |
| Hubei | 0.0135 | 1.31 | | | | |
| Guangdong | 0.0008 | 0.10 | | | | |
| Yunnan | 0.0039 | 0.44 | | | | |
| | 6168 | | 3327 | | 3904 | |
| | 0.1531 | | 0.1538 | | 0.1966 | |

The effect of sector of employment differs between the two years. In 1995, 'sector of employment' did not matter, except when using the consistent 6-provinces data. In 1999, however, a very interesting phenomenon appears. It was not those who work in the state sector but those who are employed in the private or collective sectors are more likely to be in the households where more than one member is unemployed. For wives, working at the local state sector also increases one's chance of being in the 'vulnerable households'. If we consider that most of the income compensation policies directed towards the unemployed group are only applicable to those who work in the state sector, one might question the effectiveness of these policies in the context of poverty alleviation. In the last chapter we discovered that relative to the central state sector employment, working in the collective or

private sectors provides significantly lower PCHI. On top of that we now show that people who work in the collective or private sectors are also more likely to live in a household where more than one member is unemployed. Perhaps policy measures should give this group more attention.

Another interesting issue is the age effect. We plotted two series, one using the actual average proportion of the vulnerable households for each age group and the other using average predicted probability for each age group. Both of them appear to indicate that it was the 30 to 45 age cohort which has the highest probability of falling into the vulnerable household group. This may in part be related to the fact that many older individuals have taken early retirement and hence are not counted as unemployed. However, this does not seem to be able to explain why the 30 to 40 group has the highest probability of being in the vulnerable household group. At this stage it is not clear why this is so.

Figure 4.2 Average actual and predicted probability of being vulnerable household by age.




Finally, a very interesting difference is the effect of the region of resident. In 1995, such effect is minimal. In 1999 we observe a very significant regional effect. Households living in Henan, Gansu, and Sichuan are more likely to have more than one member of the household being unemployed relative to those who live in Beijing. This may both reflect the seriousness of the unemployment problem in those regions and the ineffectiveness of local government policy in targeting the issue (recall that the central government has a policy

which specifically requires that enterprises should not layoff both husband and wife from one family, see Chapter 2).

## 4.5 Conclusions

In this chapter we investigated the issue of the characteristics of the most vulnerable groups to the economic restructuring. We identified the following groups:

First, less educated are more likely to be unemployed, to be poor and to live in a household which has more than one member being unemployed.

Second, people who happened to work in loss making firms (for most people their jobs were originally assigned to them, hence, they did not choose to work in a loss making firm) or happen to live in a less developed region (again individuals had not choice with regard to where they live. It was not until the mid-1999s labour mobility was allowed) are more likely to be unemployed, poor, and live in a household which have more unemployed members.

Third, individuals working in the collective and private sectors are more likely to be unemployed, poor, and live in a household which has more than one member being unemployed. This finding indicates that the government policy which directed towards the state layoff workers is biased and it missed the most vulnerable groups.

Finally, party members have higher income, less chance of being unemployed, less probability of being in the vulnerable household group. At this stage it is not clear whether this reflects that party members have unobservable characteristics which enhance labour productivity or they are getting favourable treatment. This issue deserve some further study.

# 5
# UNEMPLOYMENT, CONSUMPTION SMOOTHING, AND PRECAUTIONARY SAVING IN URBAN CHINA

## 5.1. Introduction

Economic shocks, whether due to normal business cycles, financial shocks, or economic restructuring, happen all the time, especially in the developing world. The recent Asian financial crisis is one of many examples. Facing such shocks, many individuals and households will experience difficult periods of unexpected reduction in income, and perhaps poverty. How to better help the individuals and households most severely affected pull through such periods is often an important policy decision for a government. One of the mechanisms governments in the developed world use to offset the effect of adverse shocks is to finance an income support scheme.[14] Putting aside the possible negative effect of such redistribution measures on economic efficiency and possible crowding out effect on private precautionary savings (Engen and Gruber, 1995), many developing countries in their current economic situation may have to juggle with very limited resources. Thus, finding the most effective way to help individuals and households who are adversely affected by economic shocks is an important policy issue.

The theoretical background for government financed direct income support schemes to offset adverse shocks assumes that individual households are limited in their ability to help themselves and that individuals may be short-sighted and hence unable to save for their own uncertain future (Bauer and Paish, 1952).[15] However, according to the Permanent Income Hypothesis, individual households should be able to smooth their consumption by saving in normal times and dissaving during periods of adverse economic shocks. Many empirical studies have found that the Permanent Income Hypothesis is, to some degree, at work in some developing economies (see, for example, Bhalla, 1979, 1980; Wolpin, 1982; and Paxson, 1992). In addition to the Permanent Income Hypothesis, the richer life cycle models, which allow for precautionary saving, suggest that when future uncertainty increases, current consumption will fall and saving will increase, especially in the developing world where

[14] Various unemployment insurance (UI) schemes are also implemented in some developed countries. While UI schemes have the benefit of pooling risks, government involved UI schemes are often associated with a substantial income redistribution.

liquidity constraints are strong (Caroll and Sanwick, 1994; and Deaton, 1997). Thus, risk-averse consumers will attempt to protect themselves from future uncertainty. If this happens governments in the developing world may be better off spending scarce resources in more effective ways, such as providing training to unemployed workers, providing incentives for self-employment, and providing direct income support only to the disabled, the elderly and the most severe cases of unemployment. Hence, whether individual households have precautionary saving motives and whether they are able to smooth consumption during difficult periods is crucial to the design of effective and efficient government income support policies.

The relevance of the Permanent Income Hypothesis, to a large extent, is an empirical question. Furthermore, empirical studies on the precautionary saving have found mixed results (see Engen and Gruber, 1995, for a review). Hence, to answer the questions raised here empirical research for a particular country during a particular time period are required.

In the last 20 years the Chinese economy has experienced a significant transformation from a planned to a market oriented economy. In particular, during the last decade or so, dramatic reforms in the state sector, the social welfare system, and the labour market have brought more uncertainty into everyday life. Urban unemployment has become one of the most important social and economic problems in China since the mid-1990s. Over the last 4 years around 15 million state sector workers have been made redundant (Fan, 2000). On top of all these changes, the lack of formal credit markets indicates that urban households may face significant liquidity constraints.

The question naturally arises as to whether Chinese urban households are capable of smoothing their consumption in the face of a greater incidence of adverse shocks. In addition, what has been the role of precautionary saving during a period of such significant changes and dramatic increases in future uncertainty?

Many studies have investigated the saving and consumption behaviour of Chinese households (see, for example, Qian, 1988; Jefferson, 1990; Qin, 1991; Ma, 1993; Wang and Wen, 1992; Wang, 1995; Jalan and Ravillion, 1996, 1998; and Kraay, 1998).[16] Most of these studies focus on explaining household saving behaviour rather than the ability of households

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[15] Another justification for a government provided income support scheme for unemployed may be to allow individuals who are facing liquidity constraint to conduct appropriate job search (Topel, 1983; and Meyer, 1990).

to smooth consumption with respect to unexpected shocks. In addition, the majority of studies utilise aggregated data. Studies by Jalan and Ravillion (1996, 1998) and Kraay (1998), however, investigate the effect of income shocks on consumption and the impact of future income uncertainty on saving. Nevertheless, their studies are based primarily on rural household surveys (Jalan and Ravillion, 1996, 1998) or aggregated provincial data (Kraay, 1998). In addition, Kraay's study uses data collected for the period before 1995, when the acceleration of urban economic reform had not been underway for a sufficient period or to a sufficient extent to present large increases in future uncertainty to urban households. These deficiencies may have contaminated his results which indicate that neither permanent income hypothesis nor precautionary saving motives can explain urban household savings in China.

In this chapter a 1999 Urban Household Income, Expenditure and Employment (UHIEE) survey conducted in 2000 is utilised. The questions addressed are how well can urban households smooth their consumption and how well can they handle future income shocks. There is a special focus on urban unemployment. The situation in urban China seems to provide a unique opportunity to test Permanent Income and Precautionary Saving hypotheses given the sudden increase in adverse income shocks and the introduction of income uncertainty. The results of such tests will have significant policy implications.

The chapter is structured as follows. The next section briefly describes background changes that have occurred in the Chinese economy with particular implications for the increase in unemployment and uncertainty faced by urban households. Section 3 lays out the framework for the empirical analysis and discusses the data. Section 4 presents the empirical results. Conclusions are given in Section 5.

## 5.2. Background

Since 1978 China has embarked on an economic transformation towards a market-oriented economy. For the last two decades or so Chinese households have seen dramatic changes in their lives, especially since the early 1990s and especially for urban households. The focus of this chapter is on consumption smoothing in urban China and consequently the background description will focus on the urban Chinese economy.

[16] For a comprehensive survey see Kraay, 1998.

The first feature of the urban Chinese economy, which is important for this study, is that per capita income in urban China has increased significantly since the economic reforms began. According to available sample survey data per capita real income over the period 1982 to 1998 increased from 471 yuan to 1461 yuan, a three fold increase and an average annual growth rate of about 7.3 per cent (SSB, various years).

Another important feature of the urban economy is the change in the social security system during the reform period. In the pre-reform era most welfare benefits in urban China, such as housing, medical care, pensions, and children's schooling, were provided by the state-owned enterprises as an internal social security system. Every urban resident was guaranteed lifetime employment (Meng, 2000). This security system has been gradually changed during the economic reform process and the rate of change has accelerated since the early 1990s.

Starting from the late 1980s and early 1990s, economic reform has swept away almost all aspects of the old social security system. Housing reform started with increases in official rents. It then proceeded to allow government housing occupants to buy their own housing at a subsidised price, and finally the reform moved on to a further opening up of the housing market. By the end of 1999, most urban households have the expectation that they will purchase their own housing and the majority of urban households have already done so. According to the 13 city 1999 UHIEE survey data, among 4474 households surveyed, 63 per cent owned their own houses.

Reform in the medical care area has changed from one hundred per cent state covered medical service to a two-tier system, whereby the state covers a certain percentage of the cost of medical services and individuals pay the rest. According to the survey mentioned above among 8935 individuals who paid medical expenses in 1999 less than 30 per cent of these expenses were paid by the state.

Pension reform has also begun. The new system divides old-age support into a mandatory basic system and a voluntary commercial system (Garnaut, Song, Wang, and Yao, 1999). A regional unified mandatory social pension fund was established in some cities during the early 1990s, to which both firms and employees contribute. In the voluntary commercial system, a worker or a firm can buy retirement insurance on a voluntary basis. However, regional variation is significant.

More and more schools have begun to charge fees and compulsory 'donations' for what used to be free primary and secondary education. Since the mid-1990s, tertiary education has also increasingly required financial contributions from parents.

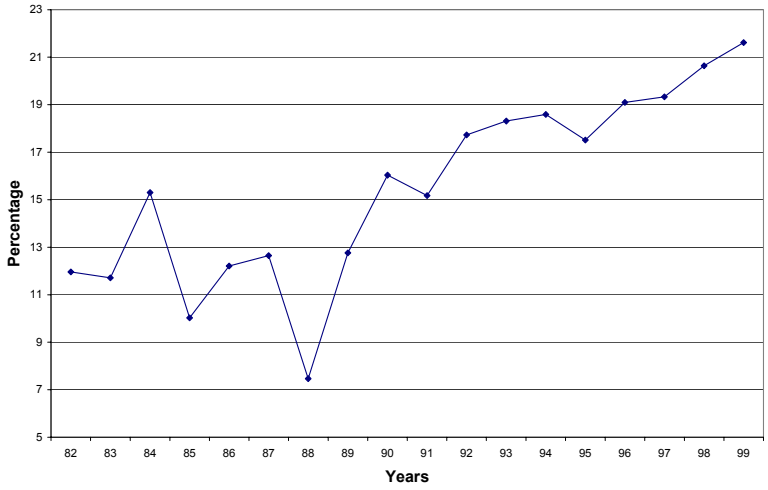
Perhaps the most significant changes have occurred in the system of employment. Lifetime employment has more or less been abolished for new labour market entrants, even in the state sector. As a replacement, new labour market entrants are mainly employed under fixed or continuous contracts in the state sector (Meng, 2000). More importantly, the employment share of the state sector has been shrinking while the employment share of the "other sector", which comprises private, foreign owned, and joint venture enterprises, has increased significantly. Employment in the "other sector" is mainly under short term contract or on a temporary basis. It is reported that in 1998 the share of "other sector" employment exceeded the share of employment in the state sector (Meng, 1999).

Accompanying all these changes is the reform of state-owned enterprises. Due to soft budget constraints and other problems related to determining property rights, the Chinese state sector has been performing badly. In 1995-1996, around 50 per cent of enterprises were making losses (East Asian Analytical Unit, 1997). To vitalise the Chinese economy a policy of drastic reform in the state enterprises was introduced. As a result of this policy many small and median size loss making state enterprises were bankrupted. Those that survived started to take efficiency measures seriously. These two forces led to a large-scale displacement. Over the last few years around 15 million state sector workers have been made redundant (Fan, 2000). According to the 1995 Urban Household Income and Expenditure Survey (UHIES), also conducted by the Institute of Economics at Chinese Academy of Social Sciences, and the 1999 UHIEE survey, the unemployment rate was 8.5 in 1995 while in 1999 this rate had increased to 17.3 per cent. Thus, not only has lifetime employment been abolished for the young, but also those who previously had lifetime employment, especially middle aged and older employees, are facing a real possibility of being displaced.

In summary, social security reforms implemented in urban China, together with a dramatic increase in unemployment in recent years, has changed urban household perceptions as to their future. Despite these growing uncertainties, the formal credit market in urban China has not been developing quickly. Banks do not normally provide personal loans. Only very recently (after 1997) have some banks in some regions begun to provide housing loans and a limited number of other personal loans to individual households.

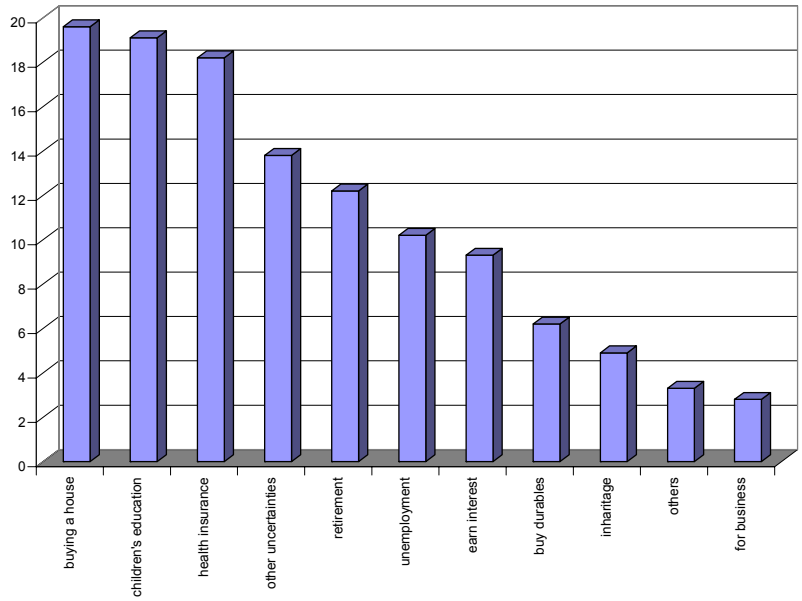
The sudden increase in uncertainty of household welfare and income has had a large impact on household consumption and saving behaviour. Figure 1 shows the increase in the saving rate for urban households over recent years. It indicates a substantial increase in the per capita saving rate since the late 1980s and early 1990s when the social security reform began. During the 1995-1999 period when the state sector speeded up laying off workers, the average per capita income increase has been 7.3 per cent per annum, while the average rate of per capita saving increased at the rate of 13.1 per cent per annum.

**Figure 5. 1** Per capita saving rate, 1982-1998




**Source**: State Statistical Bureau of China, various years, *China Statistical Yearbook*, Beijing: China Statistical Publishing House

**Figure 5. 2** Household saving motive, 1995-1997



**Source**: Wu, 1999.

It is fairly obvious that the increase in the saving rate is related to the reforms. In a survey of household saving motives during 1995-1997, it is found that the main motives for saving are buying houses, paying for children's education, health and old age insurance, and preparing for unemployment.[17] Figure 5. 2 shows that around 20 per cent of this sample identifies buying a house as the most important saving motive, and about the same percentage identifies children's education or health insurance as the most important motive. About 10 to 12 per cent of the sample indicates that preparing for retirement and unemployment is the most important motive (Wu, 1999). These figures suggest that since the mid-1990s, it has become more and more obvious to urban households that the era of government taking care of everybody has ended and households should acquire assets and be prepared for their own uncertain futures.

## 5.3. Model specification and data

The permanent income hypothesis suggests that households will smooth their consumption over a given time horizon. When realised income exceeds expected income households will save. When realised income is below expected income households will either borrow from banks or withdraw money from previous savings to finance current consumption. Thus, the consumption of household *i* is a linear function of its permanent income (expected income) and transitory income (the difference between realised and expected income) in addition to variables which are related to household taste, such as household size, composition, and other characteristics (Friedman, 1957; Bhalla, 1980; Paxson, 1992).

The richer life-cycle models, which allow precautionary saving suggest that income uncertainty should also affect household consumption (saving) behaviour as long as households have precautionary saving motivations (Carroll and Weil, 1994; Carroll, 1994; Deaton, 1997). Thus, following Paxson (1992) the approximation of the consumption function may be specified as follows:

$$C_i = \alpha + \beta Y_i^P + \gamma Y_i^T + \mu UC_i + \lambda X_i + \varepsilon_i \qquad (5.1)$$

where $C_i$ is household *i*'s consumption level

[17] Using Browning and Lusardi (1996) terminology, these motives may be summarised as the downpayment, bequest, life-cycle, and precautionary motives.

$Y_i^P$ is the measure of permanent income for household *i*

$Y_i^T$ is the measure of transitory income for household *i*

$UC_i$ is income uncertainty facing household *i*

$X_i$ is a vector of household characteristics indicating taste shifters.

According to Friedman (1957), the marginal propensity to consume out of permanent income, $\beta$, should be equal to one and the marginal propensity to consume out of transitory income, $\gamma$, should be zero if the 'strict' version of the permanent income hypothesis is followed. However, empirical studies often find that such a 'strict' version of the permanent income hypothesis does not exist. This may be due to liquidity constraints (Pagano, 1994; Zeldes, 1989) or due to an increase in the precautionary saving motive generated by increases in income uncertainty (Romer, 1990; and Carroll, 1994). Thus, a weaker version of the Permanent Income Hypothesis, which suggests that $\beta>\gamma$, may be more appropriate, especially for developing countries (see, for example, Bhalla, 1980, Paxson, 1992, and Deaton, 1997).

The consumption theory also indicates that if urban Chinese households are precautionary savers the variable *UC*, which measures income uncertainty, should be negatively correlated with consumption.

One of the important issues in relation to equation (1) is how to measure $Y^P$, $Y^T$ and *UC*. In the previous literature, permanent and transitory incomes are measured in several different ways. When using a single cross-section of data the normal procedure is to use at least one instrumental variable which is correlated with permanent income and orthogonal to transitory income to identify permanent income. Such instruments have included assets and education, lagged income, and long run averages of rainfall (Musgrove, 1978, 1979; Bhalla, 1979; Wolpin, 1982; Deaton, 1997). An alternative procedure is to find at least one instrument which can identify transitory income shocks. Paxson (1992), for example, uses regional rainfall to construct measures of a component of transitory income for Thai rice farmers and uses this instrument to facilitate the estimation of the propensity to save out of transitory income. Using panel data, Bhalla (1980) constructed two different permanent income measures, one being a weighted average of past incomes, and the other being based on estimates of an earnings equation which accounted for unobservable personal characteristics.

The current study uses cross-sectional data and the main purpose is to identify the effect of a transitory income shock—employment displacement—on households'

consumption behaviour. Ideally, one would use the Paxson (1992) methodology. However, as the determinants of displacement (unemployment) are, to a certain extent, collinear with the determinants of permanent income, this approach cannot be followed.[18]

The other possible approach is to use predicted values of permanent income from cross-sectional estimates of household income based on human capital theory as a measure for permanent income (Wang, 1995). However, as has correctly pointed out by Kraay (1998), such a methodology does not take into account the rapid change in the economic environment in China, and hence is not very attractive.

The most relevant permanent income measure to the current chapter may be Bhalla's (1980) weighted average of past incomes, which is specified as:

$$Y^P = \sum W_t Y_t \qquad t = -\infty,\ldots,0 \quad (5.2)$$

where $W_t$ are the weights for time t and $Y_t$ the measured income in time t. The weight, $W_t$, is specified as follows:

$$W_t = \delta \frac{(1+\alpha)^{-t}}{(1+\delta)^{-t}} \qquad t = -\infty,\ldots,-3,-2,-1,0. \quad (5.3)$$

where $\delta$ refers to the discount rate, and $\alpha$ refers to the trend rate of growth of permanent income for an individual household.

Although the data used in this study are cross-sectional, households were asked to report their last five years' income. The question, however, is how to weight past incomes to obtain the best estimate of household permanent income. Bhalla's definition cannot take into account a change in future uncertainties. This is reasonable given that the normal definition of uncertainty only implies changes in the variance of expected income but not changes in expected income itself. The specific situation considered in this study, an increase in the probability of being unemployed, however, has the property that it not only changes the variance of expected income but also changes expected income. An increase in the probability of unemployment in China reduces income without any offsetting positive effect.

[18] Studies by Gruber (1997), Browning and Crossley (1999) test the effect of unemployment insurance on the change in consumption. The approaches used in their studies, however, require data on changes in consumption before and after unemployment, which are not available from the data used in this study.

In other words, an increase in the probability of being unemployed will reduce household expected income as well as increase uncertainty.

To take into account the change in expected income generated by the increased risk of unemployment, the permanent income measure is adjusted for the change in the average probability of being unemployed for each household. Thus, each year's income is adjusted using the estimated average household probability of being unemployed for that year. Following Bird (1995) in the income risk literature, the measure of permanent income can be written as:

$$Y^P = \sum W_t [(1 - P_t) * Y_t + P_t \overline{Y}_t^U] \qquad (5.4)$$

where $P_t$ is the average probability of individuals in household *i* being displaced in time *t*, which is calculated by predicting the probability of being unemployed for each individual from estimated probit unemployment equation 4.1, and then average it over all individual within each household. $\overline{Y}_t^U$ is average income of households which have unemployed members at time *t*.

Following other studies, transitory income is defined as the difference between realised and expected income.

The measurement of uncertainty, *UC*, is another important issue. Economic theory suggests that households with precautionary motives will consume (save) less (more) when future income uncertainty is higher (lower). Discussion provided in the last section indicates that Chinese urban households have been subjected to significant changes in social welfare arrangements. In addition, due to lack of a formal credit market, high interest rates in the informal market, and a strong cultural bias against debt, Chinese households have historically been reluctant to borrow money. Each of these factors may contribute to urban Chinese households' precautionary saving motives. In this chapter, households' income uncertainty is measured by two variables: One variable is the variance of past incomes, and the other variable is the average predicted probability of being unemployed/displaced of household labourers in 1999.

The variables used to indicate households' taste shifts include household size, household composition, and an indication on whether household *i* has had changes in household size in 1999.

The main data source is from the 1999 UHIEE survey, which was conducted by the Institute of Economics, Chinese Academy of Social Sciences, in early 2000. In addition, to assist the estimation of probability of being unemployed in earlier years (1995-1998), data from the 1995 Urban Household Income Distribution Survey (UHIDS) is also utilised.

The calculation of the weight used to adjust permanent income, $W_t$, requires determination of $\delta$ and $\alpha$. Following Bhalla (1980), we assume a common income growth rate, $\alpha$, which is the national average household income growth rate estimated at 7 per cent per annum during the period 1995-1998 (State Statistical Bureau, 1999). The discount rate, $\delta$, is not fixed but ranges from 10 per cent to 90 per cent to test the sensitivity (Bhalla, 1980).

To adjust permanent income one also needs to trace the probability of being unemployed/displaced, $P_t$, for each of the 4 years. To do so, equation (5) is estimated using both the 1995 UHIE and 1999 UHIEE data sets, and predicted probabilities both years for the 1999 sample households are obtained from the estimated results. The assumption is then made that the change of the probability of being unemployed takes an exponential form between the two years. The predicted probability for each household for the years of 1996-1998 is calculated according to the calculated average annual growth rate of the probability for each household.

The 1995 UHIE and 1999 UHIEE surveys have two questions on employment status. The first one seeks information on the individual's current labour force status (the time the surveys were conducted, which was 1996 for 1995 UHIE and 2000 for 1999 UHIEE), while the second one asks about the individual's employment and unemployment status in 1995 and 1999. Due to the fact that both individual incomes and household consumption are for the year of 1995 and 1999, the second measure of employment status is used as the main indicator for unemployment.

In addition to the two questions on employment status, the survey also interviewed 1336 displaced workers (not the complete sample of displaced workers) and has detailed information on their duration of unemployment. From this information, one can derive a rough measure of the stock of unemployment/displacement in each year during the period 1995-1999.[19] To test the sensitivity of the unemployment adjustment to permanent income, I

[19] For this sub-sample of individuals a question is asked as to how long they have been unemployed. From this question one can derive the stock of unemployment in 1995 to 1999.

also estimated equation (5) using this unemployment stock measure for each of these 5 years, and obtained alternative predicted probability measures using results from these estimations.

**Table 5.1**. Summary statistics of different measure of permanent income

| | $\delta$=0.1 | | $\delta$=0.9 | |
|---|---|---|---|---|
| | Mean | C.V. | Mean | C.V. |
| No adjustment for unemployment | 12365.27 | 0.58 | 12783.37 | 0.60 |
| Adj. for unemp. using 95 and 99 surveys | 11656.76 | 0.57 | 11998.32 | 0.59 |
| Adj. for unemp. using unemp. stock data | 12236.10 | 0.57 | 12614.23 | 0.60 |

The 1999 UHIEE survey comprises 13,538 individuals from 4,494 households with an average size of 3.01 people. Excluding missing values, the total number of households included in the estimations ranges from 3896-4116, depending on the adjustment used for the permanent income measure. Table 5.1 reports the mean and coefficient of variation for different measures of permanent income. It shows that different adjustments in $\delta$ and the predicted probability of being unemployed change the mean value and standard deviation of permanent income only slightly.

Among sample households 24 per cent have unemployed/displaced member(s). An interesting phenomenon observed from the data is that, on average, the sub-sample of households with unemployed members has positive savings. Table 5.2 presents the average household real income, real expenditure, and real savings in 1999 for the total sample and for the sub-samples of households with and without unemployed members. It shows that the households with unemployed members have an average household income about 66 per cent of that of households without unemployed members. The ratio of expenditure and saving between the two groups is 74 and 36 per cent, respectively. The average saving rate for the households with and without unemployed members is 12 and 22 per cent, respectively.

**Table 5.2** Summary statistics of income, consumption, and savings

| | Total sample | | Households without unemployed member | | Households with unemployed member | |
|---|---|---|---|---|---|---|
| | Mean | CV | Mean | CV | Mean | CV |
| Real income | 16949.06 | 0.64 | 18464.66 | 0.59 | 12335.51 | 0.64 |
| Real total expenditure | 13580.19 | 0.61 | 14474.48 | 0.59 | 10857.93 | 0.63 |
| Real saving | 3368.87 | 2.69 | 3990.18 | 2.27 | 1477.58 | 4.68 |

**Figure 5. 3** Deciles of saving distributions for households with and without unemployed members

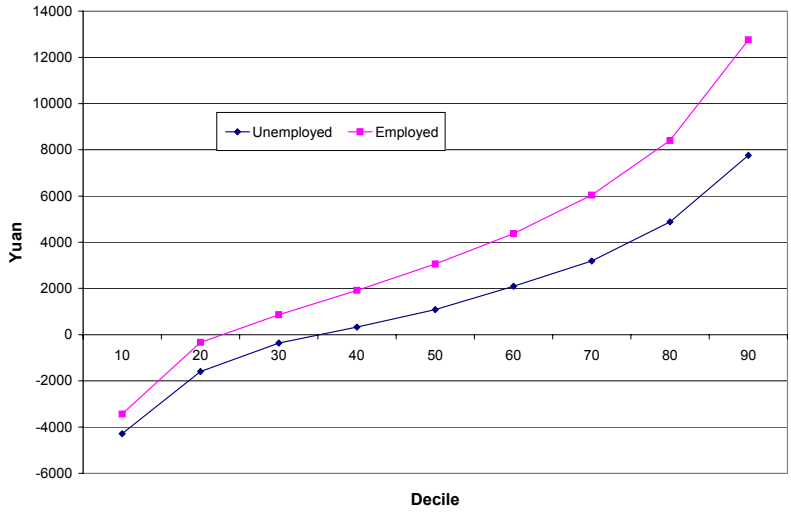



Figure 5. 3 shows the saving distribution for the two sub-groups of households. It presents the average saving for each decile when households are arranged in ascending order of savings. Apart from a vertical displacement the saving pattern is quite similar for the two groups. About 35 per cent of households with unemployed members dis-save while this ratio is about 23 per cent for the other group of households.

The fact that the average saving for households with unemployed members is positive and that about 65 per cent of this group of households has positive saving suggests that the unemployment shock to the urban households, measured in terms of its impact on consumption and savings, is not as significant as it may be expected. Perhaps there are other income channels for these households apart from formal employment that help to offset the unemployment shock. Such channels may include employment in the informal sector and intra-family income transfers.[20]

The summary statistics for other relevant variables are reported in Table 5.A, Appendix A. Although real total expenditure for households with unemployed member(s) is about 33 per cent less than that of households without unemployed individuals the expenditure patterns are similar. Food consumption accounted for 42 per cent of total consumption for households without unemployment and 46 per cent for households with unemployed member(s). The proportion of educational expenditure in the total expenditure is

[20] The average government income support for households with unemployed members only accounts for 5 per cent of the average household income for this group.

11 and 10 per cent, respectively. The family size for households without unemployed individuals is slightly smaller than that of households with unemployed individuals. In addition, unemployed households have a slightly higher proportion of primary aged female members than employed households (36 per cent compared to 33 per cent).

### 5.4. Empirical results for the total sample

To evaluate the impact of unemployment on household consumption two adjustments are made to the normal empirical test of Permanent Income Hypothesis. First, as discussed in the previous section, permanent income is adjusted for the predicted probability of being unemployed/displaced. Second, the predicted probability of being unemployed/displaced is included in the consumption equation as an independent effect to capture whether households change their consumption behaviour over and above the adjustment to permanent income because of their potential possibility of being displaced.

In addition, a test is conducted to investigate if consumption behaviour differs between households with and without unemployed members and separate consumption equations are estimated for the two groups of households when we identify a statistically significant difference in behavioural patterns. The theoretical consideration behind this is that households with unemployed members may face more serious liquidity or subsistence constraints, and hence, have a different consumption behaviour in comparison to households without unemployed members. In addition, as the large scale unemployment is only recently became a recognised reality to the Chinese urban households, households which are hit by this recent unemployment shocks may not have had enough time to adjust.

Equation (1) is estimated with controls for regional differences. In this chapter the consumption smoothing is tested for total consumption, food consumption, and educational consumption separately. F-tests for structural change between households with and without unemployed members show that, for total consumption and food consumption, the two groups of households have significantly different behaviour patterns, while for educational consumption no statistically significant difference is observed.[21] Nevertheless, the marginal propensity to consume education out of permanent income is statistically different between

[21] The F-test for total consumption is $F_{\infty,28} = 1.70$ and for food consumption $F_{\infty,28} = 1.99$, which are both greater than the critical value of 1.62 at 2.5 per cent significant level. For educational consumption, however, the F value is 1.22, which fails to pass the critical value even at 10 per cent significant level.

the two groups. Thus, the results reported below on total consumption and food consumption will include findings for the total sample as well as for the two sub-samples of households with and without unemployed members separately. For the educational consumption, an interaction term between the variable of permanent income and a dummy variable for households with an unemployed member is included.

As discussed in Section 3, permanent income is measured in 6 different ways according to different adjustments (see Table 5.1). To test the robustness of the results, each consumption equation is estimated 6 times using different permanent and transitory income measures.

The predicted probability of unemployment is obtained in two ways, one according to the stock of unemployment in 1999 reported in the 1999 UHIEE data, and the other according to the information on current employment status reported in the 1999 data. To test the sensitivity of the results, each of the above mentioned 6 consumption regression with different permanent income measures is also estimated twice with different measures of predicted probabilities.

The estimations using different permanent income measures and different measures of the predicted probability of being displaced produced similar results, suggesting that the results are very robust. Selected results from the total consumption regression using permanent income adjusted for a growth rate, a discount rate, as well as for the predicted probability of being displaced obtained from 1995 and 1999 data are reported in Table 5.3.[22] The table consists of three panels. The top panel reports the results from the total sample while the middle and the bottom panels provide estimates using the employed and unemployed sub-samples.

To correct for heteroscedasticity, White's consistent estimator of the covariance matrix is used (Greene, 1990). In addition, the inconsistency of the variance-covariance matrix of our estimation may also occur due to the use of the predicted regressor of average probability of being unemployed/displaced for the household labourers (Pagan, 1984). The remedy provided in Pagan (1984), however, may not be appropriate because the predicted regressor used in this study is generated from a non-linear estimation. Furthermore, the

consumption equations are estimated at household level, whereas the probability of being unemployed is estimated at the individual level and then the household average predicted probability is calculated according to these individual level probabilities. These factors may contribute to the complication of the correction of the inconsistent estimation of the variance-covariance matrix. To deal with this problem, we bootstrapped all standard errors and the results are consistent with the results obtained using White consistent estimates. Thus, all the t-statistics reported below are calculated according to the White's consistent estimator of the variance-covariance matrix.[23]

The coefficients on permanent and transitory incomes indicate the marginal propensity to consume out of the two kinds of incomes. The rows, which labelled the test of consumption smoothing, suggest whether the marginal propensity to consume out of permanent and transitory incomes are statistically significantly different from each other.

Table 5.4 indicates that in terms of total consumption, the MPC out of permanent income ranges from 52 to 53 per cent for the total sample, and is higher for households with unemployed members than for households without unemployment. The difference, however, is not statistically significant. The MPC out of transitory income is statistically significantly different between households with and without unemployed members. For the former almost 40 per cent of transitory income was spent, while for the later the ratio is only around 30 per cent.[24] These differences indicate that households with unemployed members have a higher propensity to consume, and hence, lower propensity to save.

The statistical test as to whether $\beta$ is significantly greater than $\gamma$ indicates that urban Chinese households are capable of smoothing their total consumption. For the total sample as well as the sub-samples of households with and without unemployment, the difference between $\beta$ and $\gamma$ is statistically significant.

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[22] Full results are available upon request from the author. Selected results using other permanent income measures and with different predicted probability of unemployment are reported in Tables B1, B2, and B3 of Appendix B for total, food and educational consumption, respectively.
[23] The bootstrapped results are available upon request from the author. The bootstrap replicated 1000 times.
[24] To conduct F-test for structural change, the pooled regression is estimated for the total sample with interaction terms between all the variables and the dummy variable for household with unemployed member(s). The t-statistics for each interaction term indicate whether the coefficient is statistically significantly different between the two groups of households. The t-ratio for the difference of the MPC out of permanent and transitory incomes between the two groups of households is 1.45 and 2.31, respectively.

**Table 5.4** Selected results from total consumption regression

| | delta=0.1 | | delta=0.9 | |
|---|---|---|---|---|
| *Total sample* | Coef. | T-ratio | Coef. | T-ratio |
| Permanent income ($\beta$) | 0.514 | 15.15 | 0.528 | 17.07 |
| Transitory income ($\gamma$) | 0.314 | 5.00 | 0.298 | 4.58 |
| Predicted probability of unemployment | -73.175 | -4.51 | -68.090 | -4.45 |
| Variance of last 4 years income | -0.020 | -2.42 | -0.032 | -3.07 |
| Test on consumption smoothing: $\beta>\gamma$ | 0.199 | 3.57 | 0.230 | 3.65 |
| Number of observations | 4115 | | 4115 | |
| Adjusted R-squared | 0.395 | | 0.397 | |
| *Employed* | Coef. | T-ratio | Coef. | T-ratio |
| Permanent income ($\beta$) | 0.492 | 12.78 | 0.513 | 14.21 |
| Transitory income ($\gamma$) | 0.294 | 4.16 | 0.276 | 3.87 |
| Predicted probability of unemployment | -78.400 | -4.02 | -71.330 | -3.86 |
| Variance of last 4 years income | -0.018 | -2.12 | -0.032 | -2.84 |
| Test on consumption smoothing: $\beta>\gamma$ | 0.198 | 3.11 | 0.237 | 3.41 |
| Number of observations | 3054 | | 3054 | |
| Adjusted R-squared | 0.382 | | 0.386 | |
| *Unemployed* | Coef. | T-ratio | Coef. | T-ratio |
| Permanent income ($\beta$) | 0.576 | 10.51 | 0.553 | 10.00 |
| Transitory income ($\gamma$) | 0.392 | 8.94 | 0.398 | 8.46 |
| Predicted probability of unemployment | -34.779 | -1.66 | -36.8176 | -1.73 |
| Variance of last 4 years income | -0.045 | -2.81 | -0.041 | -2.32 |
| Test on consumption smoothing: $\beta>\gamma$ | 0.184 | 2.60 | 0.155 | 2.06 |
| Number of observations | 1061 | | 1061 | |
| Adjusted R-squared | 0.355 | | 0.353 | |

This result is particularly interesting for the sub-sample of households with unemployed members. The fact that they spend less of their transitory income relative to permanent income when facing significant income shocks due to unemployment and that on average they have positive savings may suggest that other sources of income and assets may be in place and may partially compensate their income loss from unemployment. This indicates a scope in which households facing unemployment shocks can pull through the difficult period by themselves.

The most interesting results from Table 5.4 are the effect of uncertainty on household consumption/savings. For the total sample, as well as the two sub-samples, the variation of the last four years of household income level has a negative and significant effect on household total consumption. This indicates that households with more income uncertainty are more likely to consume less and save more.

When the variable 'household average predicted probability of being displaced' is included in the total consumption regression we observe a negative and statistically significant effect. The coefficient is larger for the households without unemployed members.

Every one percentage point increase in household average predicted probability of being displaced reduces household consumption by 71 to 77 yuan. This result seems to suggest that households with no unemployed members are aware of their potential probability of being displaced and hence react accordingly in their consumption and saving behaviour. The average probability of being displaced for households without unemployed members is about 12 percentage points, with a minimum of approximately zero and a maximum of around 46 percentage points. Thus, on average these households save about 855 to 920 yuan in anticipation of unemployment, which accounts for around 23 to 25 per cent of their average savings. This is a significant amount.

The predicted probability of being unemployed also has negative and statistically significant effect on the consumption of the households with unemployed members. There are two possible interpretations of this additional effect. First, because this study uses cross-sectional data, the variation in the predicted probability of being unemployment among households with unemployed members may capture the effect of the duration of unemployment. Individuals with a longer duration of being unemployed are more likely to be identified in any given time frame. Thus, the negative effect of the average predicted probability of being unemployed on consumption for this group of households may suggest that households with predicted longer duration of being unemployed are saving more. Second, the variable of predicted probability of being unemployed used in this study is average predicted probability of being unemployed for all household labourers. Thus, the negative effect of this variable on total consumption may indicate the awareness of probability of more household members being unemployed.

The above analysis is mainly focused on total consumption. For households facing transitory shocks, however, the most important policy implications should be drawn from household basic (food) consumption and educational consumption smoothing. This is because for poor households basic consumption is an important indicator of welfare and educational consumption provides human capital investment to the next generation and hence is important for intergenerational income mobility.

Table 5.5 reports selected results from the food consumption regression. The marginal propensity to consume food out of permanent and transitory income for the total sample is about 14 and 7 per cent, respectively. Once again, these ratios are much higher for the sub-sample of households with unemployed members. However, these households seem to be

able to smooth their food consumption very well. The test shows that $\beta$ is statistically significantly different from $\gamma$ with t-ratios of 2.9 to 3.3 for the unemployed households.

**Table 5.5** Selected results from food consumption regression

| | delta=0.1 | | delta=0.9 | |
|---|---|---|---|---|
| *Total sample* | Coef. | T-ratio | Coef. | T-ratio |
| Permanent income ($\beta$) | 0.135 | 14.20 | 0.134 | 14.96 |
| Transitory income ($\gamma$) | 0.069 | 5.04 | 0.067 | 4.78 |
| Predicted probability of unemployment | -24.350 | -5.37 | -23.547 | -5.34 |
| Variance of last 4 years income | -0.002 | -0.99 | -0.005 | -1.74 |
| Test on consumption smoothing: $\beta>\gamma$ | 0.066 | 4.56 | 0.067 | 4.43 |
| Number of observations | 4115 | | 4115 | |
| Adjusted R-squared | 0.388 | | 0.388 | |
| *Employed* | Coef. | T-ratio | Coef. | T-ratio |
| Permanent income ($\beta$) | 0.123 | 11.66 | 0.124 | 12.25 |
| Transitory income ($\gamma$) | 0.062 | 4.21 | 0.059 | 4.02 |
| Predicted probability of unemployment | -25.167 | -4.62 | -24.189 | -4.51 |
| Variance of last 4 years income | -0.002 | -0.63 | -0.004 | -1.47 |
| Test on consumption smoothing: $\beta>\gamma$ | 0.062 | 3.92 | 0.065 | 3.98 |
| Number of observations | 3054 | | 3054 | |
| Adjusted R-squared | 0.361 | | 0.362 | |
| *Unemployed* | Coef. | T-ratio | Coef. | T-ratio |
| Permanent income ($\beta$) | 0.184 | 9.90 | 0.174 | 10.05 |
| Transitory income ($\gamma$) | 0.103 | 6.07 | 0.106 | 5.89 |
| Predicted probability of unemployment | -12.155 | -1.76 | -12.700 | -1.84 |
| Variance of last 4 years income | -0.010 | -1.44 | -0.008 | -1.13 |
| Test on consumption smoothing: $\beta>\gamma$ | 0.081 | 3.32 | 0.069 | 2.89 |
| Number of observations | 1061 | | 1061 | |
| Adjusted R-squared | 0.457 | | 0.453 | |

The variation of previous income has no significant impact on food consumption for both groups of households. This may be because food consumption is essential relative to other type of consumption and hence has little scope for reduction.

Despite the insignificant result on income uncertainty, the households with a higher probability of being unemployed save out of their food consumption. This may be because income uncertainty is not as strong a pressure as the probability of being unemployed. The rate of saving out of food consumption, however, is much lower than the saving out of the total consumption. On average, every one percentage point increase in the predicted probability reduces food consumption by about 25 and 12 yuan for the sub-samples of households without and with unemployed members, respectively. That is, on average, households in the two groups reduce food consumption by 302 and 218 yuan, which accounted for 5 and 4 per cent of the average food consumption for the two groups, respectively.

Turning to the educational consumption it is found that for the total sample the average household expenditure on education amounted to 1499 yuan, while the households without unemployed members spent 1630 yuan and the households with unemployed members spent 1100 yuan on education (see Appendix A). The total educational expenditure accounted for 11.3 and 10.1 per cent of total expenditure for the households without and with unemployed members, respectively. Table 5.6 reports selected results from the educational consumption regression.

**Table 5.6** Selected results from educational consumption regression

| | delta=0.1 | | delta=0.9 | |
|---|---|---|---|---|
| Total sample | Coef. | T-ratio | Coef. | T-ratio |
| Permanent income ($\beta$) | 0.072 | 7.533 | 0.074 | 8.300 |
| Permanent income*dummy for unemployed | -0.019 | -2.769 | -0.018 | -2.786 |
| Transitory income ($\gamma$) | 0.052 | 3.715 | 0.050 | 3.429 |
| Predicted probability of unemployment | -8.300 | -1.715 | -7.744 | -1.634 |
| Variance of last 4 years income | -0.005 | -2.271 | -0.006 | -2.329 |
| Test on consumption smoothing (employed): $\beta>\gamma$ | 0.020 | 1.399 | 0.024 | 1.524 |
| Test on consumption smoothing (unemp): $\beta>\gamma$ | 0.007 | 0.096 | 0.005 | 0.359 |
| Number of observations | 4115 | | 4115 | |
| Adjusted R-squared | 0.165 | | 0.165 | |

Although an F-test indicates that there is no structural change between the two groups of households in terms of educational consumption, the marginal propensity to consume out of permanent income is statistically significantly different between them. The consumption-smoothing test indicates that for the both households with and without unemployed members the difference between marginal propensities to consume out of permanent and transitory income is statistically insignificant and the point estimate is close to zero. Thus, neither of the two groups of households is able to smooth their educational consumption.

In addition, a significantly negative impact of income uncertainty on educational expenditure is observed. Not only the past income variation, but also the predicted probability of being displaced causes urban households to spend less on education.[25] On average, a household with the mean probability of being displaced (14 per cent for the total sample) will reduce educational expenditure by 116 yuan, which accounted for around 7 per cent of the average educational expenditure for the total sample. For the sample of households with unemployed members this amount accounted for an even larger proportion of educational

[25] The estimated result for this variable is sensitive to the different adjustment used for calculating the permanent income (see Table B3, Appendix B). In most cases it is statistically significant at 10 per cent significant level.

expenditure, 10 per cent. These seem to be very large adjustments to educational consumption.

In summary, the results obtained so far seem to suggest that urban households in China have very strong precautionary saving motivations, especially with regard to the prospect of unemployment. When combining the tests on consumption smoothing and precautionary saving it seems that the urban households have a strong motivation to save when they are 'facing' the real possibility of being displaced. Once the displacement occurs they consume more and save less, though for majority of this group of households saving is still positive. This kind of consumption and saving behaviour implies that urban Chinese households have a reasonable ability to help themselves when facing temporary income shocks. Put in another way, when households realise that the government financial support is limited they have a strong incentive to save to tide themselves over difficult periods.

This does not seem to be the case, however, for educational consumption. Chinese urban households are unable to smooth their educational consumption. In addition, households with higher income uncertainty seem likely to reduce educational consumption. These findings may lead to some important policy implications.

## 5.5 Empirical results for the poor

The results obtained from the previous section indicate that the urban Chinese households, including those with members being unemployed, are able to smooth their consumption except for educational consumption. It would be interesting to know if this conclusion still applicable when we investigate the very poor households. In this section we restricted our sample to the households whose real PCHI fall into the lowest decile of the income distribution. The results are reported in Table 5.7.

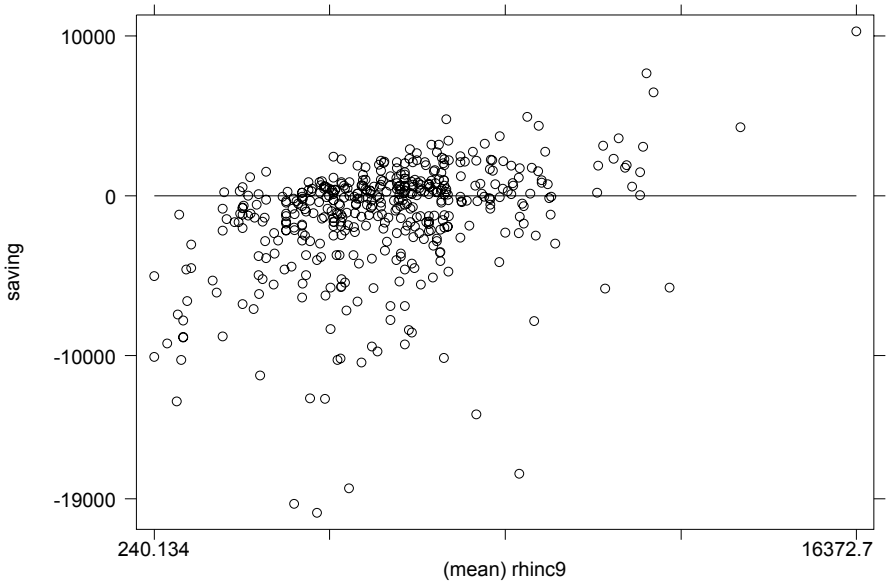
**Table 5.7** Selected results of estimated consumption equations for the 1st income decile

| | Total consumption | | Food consumption | | Edu. consumption | |
|---|---|---|---|---|---|---|
| Total sample | Coef. | T-ratio | Coef. | T-ratio | Coef. | T-ratio |
| Permanent income ($\beta$) | 0.362 | 3.38 | 0.220 | 3.81 | 0.066 | 1.77 |
| Transitory income ($\gamma$) | 0.263 | 2.69 | 0.138 | 2.42 | 0.056 | 1.97 |
| Predicted probability of unemployment | -4.108 | -2.34 | -1.800 | -2.11 | -1.519 | -1.59 |
| Variance of last 4 years income | -0.004 | -0.76 | -0.002 | -0.62 | 0.001 | 0.31 |
| Test on consumption smoothing: $\beta>\gamma$ | 0.099 | 1.14 | 0.082 | 2.04 | 0.010 | 0.51 |
| Number of observations | 416 | | 416 | | 416 | |
| Adjusted R-squared | 0.222 | | 0.267 | | 0.082 | |

The results indicate that in general the poorest households are unable to smooth their total consumption and educational consumption. However, they do seem to be able to smooth their food consumption. A further investigation reveals that the bottom one decile households spend about 50 per cent of the average total expenditure, 40 per cent of the average educational expenditure and 60 per cent of the food expenditure. If using households at the top one decile of the income distribution as comparison group, the bottom one decile households' total, education, and food expenditures are 28, 22, and 43 per cent of those for the top one decile. These results suggest that the income of the bottom one decile households is at the subsistent level and that the only thing in their life their income can provide is the basic consumption.

It is interesting to see that even at the bottom of the income distribution, households with higher probability of being unemployed still save. Indeed, when we plot out the level of savings for the bottom one decile households, we observe a quite large number of households (amounted for 42 per cent of the total households at the first decile of the income distribution) have positive savings (see Figure 5. 4). Their average saving is 1,300 yuan, which is 41 per cent of the average saving for the total sample. This result indicates how future uncertainty has changed households saving behaviour.

**Figure 5. 4** Savings of households at the bottom one decile of the income distribution




We also estimated the three consumption equations for households with one member being unemployed and with more than one member being unemployed. The results indicate that the first group behaved as the same as the total sample, that it that they can smooth total

and food consumption, but unable to smooth educational consumption. The second group, however, has difficulty to smooth any kind of consumption, even food consumption. This confirms our findings from the previous chapters that this is the most vulnerable group and the government policy should be directed towards this group.

## 5.6 Conclusions and policy implications

In this chapter the Permanent Income and Hypothesis and Precautionary Saving motives are tested using 1999 data from urban China. This was a period during which great social and economic changes occurred and households were facing ever greater economic uncertainties. The main empirical results may be summarised as follows:

First, urban households seem to be able to smooth their total consumption and food consumption. This is true even for households that are hit by a transitory unemployment shock. But the degree of consumption smoothing is much higher for households without unemployed members. This result is reasonable as Permanent Income Hypothesis implies that households should save more in normal times while spending some of their previous savings or save less when temporary shocks occur.

The fact that households with unemployed members can also smooth their consumption to a certain extent and that on average they have positive savings may suggest that these households can compensate their income shocks from unemployment by withdrew savings or by other sources of incomes. This finding indicates that households in urban China are capable of supporting themselves when facing transitory unemployment shocks. The question of how this consumption smoothing occurs will be a topic for further research.

Second, Chinese urban households have a very strong motivation for precautionary saving. Not only does past income uncertainty increase households' propensity to save, but the predicted probability of displacement has an even stronger effect on saving for households without unemployed members. This finding is very reassuring in that one can see that in a world where sudden uncertainties occur, households behave in a rational way to prevent themselves from future income shocks.

Third, the findings from this chapter also send an alarming signal with regard to educational expenditure. Households in urban China are found to be unable to smooth their educational consumption. In addition, we find that for those facing greater income uncertainty and a greater possibility to be displaced, the reduction in educational

consumption in response to adverse income shocks is very high, especially for those households with unemployed members. Unlike other consumption, educational consumption is mostly an investment in the future generation. Thus, the lack of educational consumption smoothing is a source of concern because of its implications for intergenerational income mobility.

Finally, it is found that the poor households are not able to smooth their consumption in general, though they can still manage food consumption.

These main findings have important policy implications. In general Chinese urban households are rational consumers and are capable of protecting themselves from transitory income shocks. What should be done about government unemployment support schemes? Given the possible negative effect of the direct income support schemes, the lack of financial means of the government, and most importantly the capability of households saving for their own uncertain future before the shock occurs and smoothing their consumption when the shock comes, it would seem appropriate for the Chinese government to adopt an unemployment support system which heavily relies upon individual contributions. The government should use its scares resources to support the most needy.

We find in this study that while households in general can smooth their consumption in urban China, the poorest have a greater difficulty to do so. Combined with the findings of Chapters 4 we may conclude that employees from the collective and private sectors are more likely to fall into the low income group we may challenge the current government policy which gives the state sector layoff workers the most favourable treatment in terms of income support. Perhaps when it comes to helping the poorest, everybody should be treated equally.

In addition, the current policy gives all layoff workers equal treatment regardless of their family income situation. Thus, a young layoff worker living with his/her parents who are all employed receives the same amount of living allowance as a middle aged worker with two children and a spouse who is also laid-off. The policy may need to be more targeted on households rather than individuals, on poor households, rather than all households with unemployed members.

Finally, investment in human capital of the next generation is one of the most important issues facing the Chinese government. The fact that urban households are unable to smooth educational consumption and are reducing educational consumption in response to

future uncertainty ought to attract a greater attention from the government. It is not a good outcome if future generations of poor families, with an increasing incidence of unemployment, are unable to adequately finance the education of their children. This outcome provides an *a priori* case for government involvement in education financing for the poor.

## Appendix A:

Summary statistics of household level variables

| Variable | Total Sample | | Employed | | Unemployed | |
|---|---|---|---|---|---|---|
| | Mean | CV | Mean | CV | Mean | CV |
| Real total expenditure | 13580.19 | 0.61 | 14474.48 | 0.59 | 10857.93 | 0.63 |
| Real food expenditure | 5799.90 | 0.48 | 6050.83 | 0.48 | 5036.03 | 0.47 |
| Real education expenditure | 1498.77 | 1.50 | 1629.45 | 1.47 | 1100.96 | 1.50 |
| Permanent income YP1 | 12365.27 | 0.58 | 13174.82 | 0.56 | 9900.97 | 0.58 |
| Permanent income YP2 | 12783.37 | 0.60 | 13721.83 | 0.58 | 9926.62 | 0.59 |
| Permanent income YP3 | 11656.76 | 0.57 | 12483.63 | 0.56 | 9207.31 | 0.55 |
| Permanent income YP4 | 11998.32 | 0.59 | 12942.55 | 0.57 | 9201.18 | 0.57 |
| Permanent income YP5 | 12236.10 | 0.57 | 13135.72 | 0.55 | 9637.77 | 0.57 |
| Permanent income YP6 | 12614.23 | 0.60 | 13645.09 | 0.57 | 9636.87 | 0.58 |
| Transitory income TP1=Y-YP1 | 4583.79 | 1.63 | 5289.84 | 1.49 | 2434.53 | 2.26 |
| Transitory income TP2=Y-YP2 | 4165.70 | 1.78 | 4742.83 | 1.67 | 2408.88 | 2.19 |
| Transitory income TP3=Y-YP3 | 5399.28 | 1.39 | 6164.65 | 1.29 | 3132.01 | 1.75 |
| Transitory income TP4=Y-YP4 | 5057.73 | 1.47 | 5705.73 | 1.39 | 3138.15 | 1.68 |
| Transitory income TP5=Y-YP5 | 5065.10 | 1.52 | 5816.97 | 1.41 | 2893.51 | 1.93 |
| Transitory income TP6=Y-YP6 | 4686.97 | 1.63 | 5307.61 | 1.54 | 2894.41 | 1.85 |
| Standard dev. of 95-98 real income | 2145.30 | 1.78 | 2225.13 | 1.83 | 1902.32 | 1.52 |
| Mean HH prob. unemp in 1999 | 0.14 | 0.66 | 0.12 | 0.69 | 0.18 | 0.50 |
| Mean HH prob. unemp in 1999 (stock) | 0.09 | 0.96 | 0.07 | 1.01 | 0.13 | 0.76 |
| Household size | 3.02 | | 2.97 | | 3.16 | |
| % of kids 0-5 | 0.03 | | 0.03 | | 0.03 | |
| % of kids 6-10 | 0.03 | | 0.03 | | 0.04 | |
| % of kids 11-15 | 0.36 | | 0.36 | | 0.37 | |
| % of male 16-19 | 0.34 | | 0.33 | | 0.36 | |
| % of female 16-19 | 0.05 | | 0.06 | | 0.02 | |
| % of male 20-64 | 0.04 | | 0.05 | | 0.02 | |
| % of female 20-64 | 0.03 | | 0.02 | | 0.03 | |
| % of male >=65 | 0.05 | | 0.04 | | 0.05 | |
| % of female >=65 | 0.07 | | 0.06 | | 0.07 | |
| Dummy for change HH size in 1999 | 0.03 | | 0.03 | | 0.02 | |
| city1 | 0.06 | | 0.05 | | 0.08 | |
| city2 | 0.10 | | 0.11 | | 0.07 | |
| city3 | 0.06 | | 0.05 | | 0.06 | |
| city4 | 0.15 | | 0.16 | | 0.12 | |
| city5 | 0.07 | | 0.07 | | 0.08 | |
| city6 | 0.05 | | 0.04 | | 0.07 | |
| city7 | 0.05 | | 0.06 | | 0.04 | |
| city8 | 0.10 | | 0.10 | | 0.09 | |
| city9 | 0.05 | | 0.04 | | 0.08 | |
| city10 | 0.05 | | 0.05 | | 0.06 | |
| city11 | 0.10 | | 0.10 | | 0.11 | |
| city12 | 0.05 | | 0.05 | | 0.06 | |
| city13 | 0.05 | | 0.05 | | 0.06 | |

Note: YP1=permanent income adjusted for $W_t$ with $\delta$=0.1
YP2= permanent income adjusted for $W_t$ with $\delta$=0.9
YP3= permanent income adjusted for $W_t$ & $P_t$ with $\delta$=0.1and $P_t$ from 95-99 measure
YP4= permanent income adjusted for $W_t$ & $P_t$ with $\delta$=0.9and $P_t$ from 95-99 measure
YP5= permanent income adjusted for $W_t$ & $P_t$ with $\delta$=0.1and $P_t$ from stock measure
YP6= permanent income adjusted for $W_t$ & $P_t$ with $\delta$=0.9and $P_t$ from stock measure

## Appendix B

**Table B1** Selected results from total consumption regression using various permanent income measures

| | Predicted probability measure 1 | | | | | | | | Predicted probability measure 2 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Adjust for PINC without using unemployment measures | | | | Adjust for PINC using unemployment from 99 unemployment stock | | | | Adjust for PINC without using unemployment measures | | | | Adjust for PINC using unemployment from 99 unemployment stock | | | |
| | delta=0.1 | | delta=0.9 | | delta=0.1 | | delta=0.9 | | delta=0.1 | | delta=0.9 | | delta=0.1 | | delta=0.9 | |
| Total sample | Coef. | t-ratios | Coef. | t-ratios | Coef. | t-ratios | Coef. | t-ratios | Coef. | t-ratios | Coef. | t-ratios | Coef. | t-ratios | Coef. | t-ratios |
| Permanent income ($\beta$) | 0.497 | 5.02 | 0.508 | 16.76 | 0.497 | 14.73 | 0.512 | 16.51 | 0.499 | 15.08 | 0.511 | 16.87 | 0.504 | 15.21 | 0.519 | 17.00 |
| Transitory income ($\gamma$) | 0.316 | 14.93 | 0.300 | 4.64 | 0.315 | 4.95 | 0.298 | 4.55 | 0.317 | 4.96 | 0.300 | 4.58 | 0.318 | 4.97 | 0.301 | 4.57 |
| Predicted probability of unemployment | -80.236 | -4.72 | -77.432 | -4.78 | -80.453 | -4.82 | -76.121 | -4.81 | -97.485 | -4.56 | -93.733 | -4.57 | -91.733 | -4.43 | -85.977 | -4.35 |
| Variance of last 4 years income | -0.020 | -2.43 | -0.032 | -3.09 | -0.018 | -2.26 | -0.030 | -2.95 | 0.000 | -2.42 | -0.033 | -3.08 | -0.019 | -2.32 | -0.031 | -3.00 |
| Test on consumption smoothing: $\beta>\gamma$ | 0.180 | 3.44 | 0.208 | 3.62 | 0.182 | 3.30 | 0.214 | 3.51 | 0.182 | 3.39 | 0.211 | 3.59 | 0.186 | 3.32 | 0.219 | 3.53 |
| Number of observations | 4116 | | 4116 | | 3896 | | 3896 | | 3896 | | 3896 | | 3896 | | 3896 | |
| Adjusted R-squared | 0.394 | | 0.397 | | 0.402 | | 0.405 | | 0.401 | | 0.404 | | 0.400 | | 0.404 | |
| Employed | | | | | | | | | | | | | | | | |
| Permanent income ($\beta$) | 0.476 | 4.20 | 0.493 | 14.06 | 0.478 | 12.45 | 0.498 | 13.95 | 0.478 | 12.55 | 0.495 | 14.02 | 0.483 | 12.71 | 0.504 | 14.21 |
| Transitory income ($\gamma$) | 0.297 | 12.52 | 0.279 | 3.90 | 0.294 | 4.13 | 0.275 | 3.83 | 0.296 | 4.15 | 0.278 | 3.86 | 0.297 | 4.15 | 0.278 | 3.85 |
| Predicted probability of unemployment | -85.90 | -4.28 | -83.28 | -4.28 | -85.64 | -4.37 | -80.89 | -4.27 | -105.65 | -3.96 | -102.30 | -3.92 | -98.099 | -3.77 | -91.386 | -3.60 |
| Variance of last 4 years income | -0.018 | -2.10 | -0.033 | -2.83 | -0.017 | -2.01 | -0.031 | -2.76 | -0.018 | -2.11 | -0.033 | -2.83 | -0.017 | -2.04 | -0.031 | -2.78 |
| Test on consumption smoothing: $\beta>\gamma$ | 0.179 | 3.02 | 0.214 | 3.36 | 0.184 | 2.98 | 0.223 | 3.34 | 0.182 | 3.01 | 0.217 | 3.35 | 0.187 | 2.98 | 0.226 | 3.34 |
| Number of observations | 3055 | | 3055 | | 2894 | | 2894 | | 2894 | | 2894 | | 2894 | | 2894 | |
| Adjusted R-squared | 0.381 | | 0.385 | | 0.385 | | 0.390 | | 0.384 | | 0.388 | | 0.384 | | 0.388 | |
| Unemployed | | | | | | | | | | | | | | | | |
| Permanent income ($\beta$) | 0.558 | 9.07 | 0.539 | 10.96 | 0.550 | 10.46 | 0.532 | 10.06 | 0.552 | 11.24 | 0.534 | 10.91 | 0.555 | 10.82 | 0.537 | 10.41 |
| Transitory income ($\gamma$) | 0.391 | 11.31 | 0.395 | 8.60 | 0.398 | 8.86 | 0.402 | 8.35 | 0.396 | 8.94 | 0.399 | 8.44 | 0.400 | 8.89 | 0.404 | 8.37 |
| Predicted probability of unemployment | -39.524 | -1.91 | -40.816 | -1.96 | -36.652 | -1.69 | -38.229 | -1.74 | -42.979 | -1.74 | -43.573 | -1.76 | -39.400 | -1.58 | -40.541 | -1.61 |
| Variance of last 4 years income | -0.045 | -2.85 | -0.041 | -2.38 | -0.041 | -2.59 | -0.037 | -2.13 | -0.042 | -2.66 | -0.039 | -2.20 | -0.041 | -2.59 | -0.037 | -2.11 |
| Test on consumption smoothing: $\beta>\gamma$ | 0.167 | 2.67 | 0.144 | 2.19 | 0.152 | 2.24 | 0.130 | 1.79 | 0.156 | 2.45 | 0.135 | 2.00 | 0.155 | 2.31 | 0.133 | 1.85 |
| Number of observations | 1061 | | 1061 | | 1002 | | 1002 | | 1002 | | 1002 | | 1002 | | 1002 | |
| Adjusted R-squared | 0.355 | | 0.353 | | 0.378 | | 0.376 | | 0.378 | | 0.377 | | 0.378 | | 0.376 | |

Note: (1) Predicted probability measure 1 is average household predicted probability of being displaced using 1995 and 1999 employment status data.
(2) Predicted probability measure 2 is average household predicted probability of being displaced using 1999 unemployment stock data.

**Table B2** Selected results from food consumption equation
using various permanent income measures

| | Predicted probability measure 1 | | | | | | | | Predicted probability measure 2 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Adjust for PINC without using unemployment measures | | | | Adjust for PINC using unemployment from 99 unemployment stock | | | | Adjust for PINC without using unemployment measures | | | | Adjust for PINC using unemployment from 99 unemployment stock | | | |
| | delta=0.1 | | delta=0.9 | | delta=0.1 | | delta=0.9 | | delta=0.1 | | delta=0.9 | | delta=0.1 | | delta=0.9 | |
| Total sample | Coef. | t-ratios | Coef. | t-ratios | Coef. | t-ratios | Coef. | t-ratios | Coef. | t-ratios | Coef. | t-ratios | Coef. | t-ratios | Coef. | t-ratios |
| Permanent income ($\beta$) | 0.131 | 5.02 | 0.130 | 15.57 | 0.131 | 14.03 | 0.130 | 14.86 | 0.131 | 14.62 | 0.130 | 15.49 | 0.132 | 14.33 | 0.131 | 15.15 |
| Transitory income ($\gamma$) | 0.068 | 14.64 | 0.066 | 4.77 | 0.068 | 4.96 | 0.066 | 4.71 | 0.068 | 4.93 | 0.066 | 4.70 | 0.069 | 4.99 | 0.067 | 4.73 |
| Predicted probability of unemployment | -26.53 | -5.78 | -26.08 | -5.83 | -25.92 | -5.56 | -25.28 | -5.56 | -35.45 | -5.84 | -34.83 | -5.84 | -33.60 | -5.58 | -32.71 | -5.53 |
| Variance of last 4 years income | -0.003 | -1.16 | -0.006 | -1.95 | -0.002 | -0.89 | -0.005 | -1.64 | -0.003 | -1.15 | -0.006 | -1.93 | -0.002 | -0.91 | -0.005 | -1.65 |
| Test on consumption smoothing: $\beta>\gamma$ | 0.063 | 4.72 | 0.064 | 4.65 | 0.062 | 4.49 | 0.064 | 4.41 | 0.063 | 4.69 | 0.064 | 4.62 | 0.063 | 4.50 | 0.064 | 4.40 |
| Number of observations | 4116 | | 4116 | | 3896 | | 3896 | | 3896 | | 3896 | | 3896 | | 3896 | |
| Adjusted R-squared | 0.388 | | 0.3886 | | 0.3872 | | 0.3877 | | 0.3878 | | 0.3883 | | 0.387 | | 0.3874 | |
| Employed | | | | | | | | | | | | | | | | |
| Permanent income ($\beta$) | 0.121 | 4.19 | 0.121 | 12.71 | 0.120 | 11.51 | 0.120 | 12.14 | 0.120 | 11.86 | 0.120 | 12.52 | 0.121 | 11.65 | 0.121 | 12.28 |
| Transitory income ($\gamma$) | 0.061 | 11.99 | 0.059 | 4.01 | 0.061 | 4.14 | 0.058 | 3.96 | 0.060 | 4.12 | 0.058 | 3.95 | 0.061 | 4.17 | 0.059 | 3.98 |
| Predicted probability of unemployment | -27.649 | -5.05 | -27.265 | -5.06 | -26.626 | -4.79 | -25.934 | -4.73 | -37.155 | -4.91 | -36.739 | -4.90 | -34.872 | -4.61 | -33.908 | -4.52 |
| Variance of last 4 years income | -0.002 | -0.81 | -0.005 | -1.68 | -0.001 | -0.56 | -0.004 | -1.38 | -0.002 | -0.78 | -0.005 | -1.63 | -0.001 | -0.56 | -0.004 | -1.37 |
| Test on consumption smoothing: $\beta>\gamma$ | 0.059 | 4.05 | 0.062 | 4.17 | 0.059 | 3.90 | 0.062 | 3.98 | 0.060 | 4.03 | 0.062 | 4.13 | 0.060 | 3.88 | 0.062 | 3.95 |
| Number of observations | 3055 | | 3055 | | 2894 | | 2894 | | 2894 | | 2894 | | 2894 | | 2894 | |
| Adjusted R-squared | 0.362 | | 0.363 | | 0.361 | | 0.362 | | 0.361 | | 0.362 | | 0.360 | | 0.361 | |
| Unemployed | | | | | | | | | | | | | | | | |
| Permanent income ($\beta$) | 0.174 | 6.14 | 0.167 | 10.69 | 0.177 | 10.14 | 0.170 | 10.27 | 0.175 | 10.65 | 0.168 | 10.78 | 0.178 | 10.38 | 0.171 | 10.50 |
| Transitory income ($\gamma$) | 0.104 | 10.58 | 0.106 | 5.93 | 0.106 | 6.00 | 0.107 | 5.75 | 0.105 | 6.03 | 0.106 | 5.80 | 0.106 | 6.03 | 0.107 | 5.79 |
| Predicted probability of unemployment | -14.09 | -2.05 | -14.59 | -2.13 | -13.76 | -1.88 | -14.34 | -1.97 | -19.35 | -2.20 | -19.56 | -2.22 | -17.60 | -2.00 | -17.96 | -2.04 |
| Variance of last 4 years income | -0.009 | -1.36 | -0.008 | -1.10 | -0.009 | -1.38 | -0.008 | -1.14 | -0.009 | -1.38 | -0.008 | -1.14 | -0.009 | -1.38 | -0.008 | -1.13 |
| Test on consumption smoothing: $\beta>\gamma$ | 0.070 | 3.31 | 0.061 | 2.92 | 0.071 | 3.11 | 0.064 | 2.75 | 0.070 | 3.24 | 0.062 | 2.88 | 0.072 | 3.16 | 0.064 | 2.79 |
| Number of observations | 1061 | | 1061 | | 1002 | | 1002 | | 1002 | | 1002 | | 1002 | | 1002 | |
| Adjusted R-squared | 0.456 | | 0.454 | | 0.459 | | 0.457 | | 0.460 | | 0.4574 | | 0.459 | | 0.457 | |

Note: (1) Predicted probability measure 1 is average household predicted probability of being displaced using 1995 and 1999 employment status data.

(2) Predicted probability measure 2 is average household predicted probability of being displaced using 1999 unemployment stock data.

**Table B3** Selected results from educational consumption regression using various permanent income measures

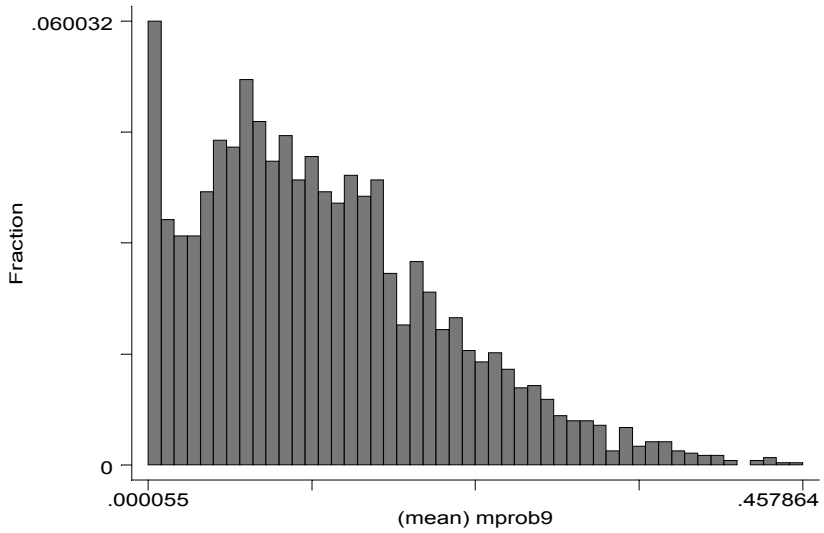
| | Adjust for PINC without using unemployment measures | | | | Adjust for PINC using unemployment from 99 unemployment stock | | | |
|---|---|---|---|---|---|---|---|---|
| | delta=0.1 | | delta=0.9 | | delta=0.1 | | delta=0.9 | |
| Predicted probability measure 1 | Coef. | t-ratios | Coef. | t-ratios | Coef. | t-ratios | Coef. | t-ratios |
| Permanent income ($\beta$) | 0.051 | 3.68 | 0.073 | 8.69 | 0.070 | 7.54 | 0.073 | 8.41 |
| Permanent income*dummy for unemp | **-0.017** | **-2.71** | **-0.017** | **-2.72** | **-0.018** | **-2.82** | **-0.018** | **-2.82** |
| Transitory income ($\gamma$) | 0.071 | 7.78 | 0.049 | 3.38 | 0.051 | 3.64 | 0.049 | 3.34 |
| Predicted probability of unemployment | -8.836 | -1.82 | -8.511 | -1.78 | -9.856 | -1.98 | -9.348 | -1.92 |
| Variance of last 4 years income | -0.005 | -2.36 | -0.007 | -2.50 | -0.005 | -2.24 | -0.007 | -2.38 |
| Test on consum smoothing (emp): $\beta>\gamma$ | 0.020 | 1.52 | 0.024 | 1.73 | 0.019 | 1.36 | 0.024 | 1.58 |
| Test on consum smoothing (unemp): $\beta>\gamma$ | 0.003 | 0.24 | 0.008 | 0.57 | 0.000 | 0.03 | 0.006 | 0.40 |
| Number of observations | 4116 | | 4116 | | 3896 | | 3896 | |
| Adjusted R-squared | 0.165 | | 0.166 | | 0.166 | | 0.165 | |
| Predicted probability measure 2 | Coef. | t-ratios | Coef. | t-ratios | Coef. | t-ratios | Coef. | t-ratios |
| Permanent income ($\beta$) | 0.051 | 3.62 | 0.074 | 8.84 | 0.072 | 7.88 | 0.074 | 8.78 |
| Permanent income*dummy for unemp | -0.018 | -2.85 | -0.018 | -2.83 | -0.019 | -2.94 | -0.019 | -2.94 |
| Transitory income ($\gamma$) | 0.072 | 7.95 | 0.049 | 3.33 | 0.052 | 3.66 | 0.050 | 3.35 |
| Predicted probability of unemployment | -9.093 | -1.47 | -8.718 | -1.42 | -8.715 | -1.42 | -8.072 | -1.33 |
| Variance of last 4 years income | -0.006 | -2.40 | -0.007 | -2.53 | -0.005 | -2.29 | -0.007 | -2.43 |
| Test on consum smoothing (emp): $\beta>\gamma$ | 0.021 | 1.57 | 0.025 | 1.77 | 0.020 | 1.43 | 0.025 | 1.65 |
| Test on consum smoothing (unemp): $\beta>\gamma$ | 0.003 | 0.23 | 0.008 | 0.57 | 0.001 | 0.04 | 0.006 | 0.41 |
| Number of observations | 3896 | | 3896 | | 3896 | | 3896 | |
| Adjusted R-squared | 0.165 | | 0.166 | | 0.165 | | 0.166 | |

Note: (1) Predicted probability measure 1 is average household predicted probability of being displaced using 1995 and 1999 employment status data

(2) Predicted probability measure 2 is average household predicted probability of being displaced using 1999 unemployment stock data.

## Appendix C:

Distribution of the household average probability of being displaced for the sub-sample of households without unemployment.



# 6
# CONCLUSIONS AND POLICY IMPLICATIONS

In this study we have investigated three important issues related to the large-scale urban unemployment which occurred in the late 1990s. To recall, the issues are:

1) To what extent has the large-scale unemployment caused by the radical economic reform increased income inequality in urban China.
2) Who are the most vulnerable people in the process of economic restructuring?
3) How do different individuals cope with the unemployment experience?

Our main conclusions may be summarised as follows:

First, the large-scale unemployment which occurred in the late 1990s has had a great impact on urban income inequality. According to our estimates, around 78 per cent of the increase in Gini coefficient between 1995 and 1999 is due to increased unemployment.

Second, the most vulnerable individuals to the economic restructuring are those who are less educated, middle aged women and those who worked in loss making firms.

Third, not all unemployed individuals suffered from significant income losses. Those whose family have no other unemployed members seem to have done relatively well comparing to individuals whose family has more than one member being unemployed in terms of per capita household income. It is the latter who suffered the most from the economic restructuring.

Fourth, apart from less educated, the most important characteristics of the households which have more than one member being unemployed are: husband and wife work in loss making firms, employed in the collective or private sectors, and lived in less developed regions.

Fifth, despite the significant income in unemployment and income inequality in the late 1990s, urban Chinese households in general can smooth consumption, even for households with unemployed members. However, educational consumption seems to be highly correlated with transitory income. As a result, most households squeeze educational consumption when they face transitory income losses. In addition, the poorest households at the bottom one decile of the income distribution cannot smooth their consumption, though

they seem to be able to smooth food consumption. Furthermore, households with more than one member being unemployed are unable to smooth any kind of consumption.

The important policy lessons we draw from this study are the followings.

The government should try harder to eliminate the possibility of multiple household members facing unemployment simultaneously. Employment agencies should give priorities to these individuals and try to help them to find jobs. Perhaps the government should give more tax incentives and preferential lending treatment to these households to encourage them to set up their own business.

Income support to the poor should be based on the level of income but not the sector of employment. State sector employees should not receive preferential treatment in this regard.

The income support should be income tested and should use household income as the criterion. This is because that on the one hand, not all households with unemployed members fell into poverty. Some 30 per cent of households with unemployed members have above median real PCHI level. On the other hand, many households without unemployed members are also poor. The government should not waste its limited resources to those households who can cushion the effect the unemployment shocks within the households.

With an income support scheme which based on income testing of household, the total amount of money spend on the program may be reduced while the amount received by the most needed may increase. For example, in our sample, around 1071 individuals are unemployed, while only 350 are living in households with more than one member being unemployed. Assume the level of support is 4,000 yuan per year. If the support is concentrated on the latter group, to double the income support to them only requires around 65 per cent of the amount if it is paid to every unemployed. Another scenario could be that only those who are in the lowest decile of the income distribution can get support. There are 416 households in that decile. The total support at the 4,000 yuan level will account for around 38 per cent of the current total support. If we double the level of the support, it will account for 78 per cent.

Finally, investment in human capital of the next generation is one of the most important issues facing the Chinese government. At the moment, educational expenditure is

used as buffer for income shocks. When income reduces and uncertainty increases households squeeze educational consumption for other expenditure and saving. This ought to attract a greater attention from the government. As stressed in Chapter 5 it is not a good outcome if future generations of poor families are unable to adequately finance the education of their children. Perhaps, money saved from changing general income support to the layoff workers to income tested household based income support can be directed to educational subsidy to the poor.

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