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Social benefits in urban China: Determinants and impact on income inequality in 1988 and 2002

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Research Paper No. 2006/117

Social Benefits in Urban China

Determinants and Impact on Income Inequality in 1988 and 2002

Qin Gao*

October 2006

Abstract

This study provides the first set of empirical evidence on the determinants of social benefits received by urban families in China and the impact on income inequality using the China Household Income Project (CHIP) 1988 and 2002 data. It finds that the total urban social benefits strongly targeted the bottom pre-tax pre-transfer income decile. Cash transfers were negatively associated with income distribution in both years, while important in-kind benefits (namely health and food in 1988 and education in 2002) were positively related to income levels. The presence of elder members and higher education levels were significantly related to more total social benefits. Urban social benefits played a significant role in reducing income inequality in both 1988 and 2002. However, the social benefit transfers were not able to close the increasing income gap caused by the growing market income inequality of the period. As a result, post-tax post-transfer income inequality level in 2002 was higher still than in 1988.

Keywords: social benefits, China, urban income inequality

JEL classification: H23, I38, R13

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Acronyms

CCP	Chinese Communist Party
CEESY	*China Education Expenditure Statistical Yearbook*
CHIP	China Household Income Project
CNY	Chinese yuan
CPI	the consumer price index
ECEC	early childhood education and care
NBS	National Bureau of Statistics (of China)
SOEs	state-owned enterprises

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1 Introduction

The growing income inequality in China since the economic reforms has attracted considerable attention. Official statistics show that the value of Gini coefficient rose from 0.33 in 1980 to 0.40 in 1994 and to 0.46 in 2000 (Chang 2002). Using the largest national household survey data conducted by the National Bureau of Statistics (NBS), Wu and Perloff (2004) find that China's income inequality increased from a Gini coefficient of 0.31 in 1985 to 0.42 in 2001. This largely follows the hypothesis of the Kuznet curve in that economic growth and development are initially associated with increasing inequality.[1]

There have always, however, been two sides to the overall story of China—urban and rural China—resulting from the rural-urban division, established as the household registration system in 1955. Although both urban and rural income inequality has increased substantially since the mid-1980s, urban inequality was lower than rural inequality, but has grown faster (Wu and Perloff 2004; Wu and Treiman 2004). Relative urban poverty increased from 2 per cent in 1988 to 10 per cent in 2002.[2] This transition has happened along with two major changes. First, economic reforms have enlarged the market income gap in urban areas that had been kept minimal under the old 'iron bowl' system. Some of the less advantaged have been left behind by the market economy and have become the 'new urban poor'. Second, a succession of social benefit reforms has been carried out since the early 1980s and have resulted in significant reduction in the share of social benefits in urban families' post-tax post-transfer household income.

One of the major objectives of a nation's social benefit system is to reduce income inequality (Barr 2001; Garfinkel 1996). Although there has been a big volume of literature on the income inequality trend in urban China, no prior study has explored the role of social benefits in this trend. This study makes the first effort to examine the impact of social benefits on income inequality in urban China in 1988 and 2002, using national CHIP survey data (China Household Income Project).

This study attempts to answer two closely related questions. First, at the micro level, how did pre-tax pre-transfer market income and other household characteristics affect the level of social benefits received by urban households in 1988 and 2002? Second, at the aggregate level, did the social benefits change the income distribution and affect overall urban income inequality during the same timeframe?

The next section reviews the existing literature on China's urban trends of income inequality since the economic reforms. Section 3 introduces the data and methods used in this study. Section 4 gives the descriptive statistics of household demographics according to their pre-tax pre-transfer income distribution in 1988 and 2002. To answer the first question, section 5 presents the results of the cross-tabulations and regression models on the association between a household's pre-tax pre-transfer market income and other demographic characteristics and the level of social benefits. Section 6 answers the second question and shows the results of

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1 Some argue that, in contrast to the prediction of the Kuznets curve, income inequality in China will still rise for an extended period even though economic growth has levelled off somewhat (Riskin 2005; Wu and Perloff 2004).

2 Based on the author's calculation using the CHIP data. Relative poverty is measured as 50 per cent median income of urban and rural areas, respectively. Income is measured as per capita household post-tax post-transfer income, including market earnings, social benefits, and private transfers, less taxes and fees.

the impact of social benefits on the overall income redistribution and inequality. Section 7 concludes.

2 Recent income inequality trend in urban China

Urban income inequality has been rising steadily since the economic reforms, particularly since the early 1990s. Table 1 presents the Gini coefficient estimates on urban China as given in recent years in the literature. Official NBS estimates indicate that the Gini coefficient increased constantly from 0.23 in 1990 to 0.32 in 2001, with only one declination over the period (from 0.30 in 1994 to 0.28 in 1995) (Li 2003). The World Bank estimates show that the value of the Gini coefficient increased from 0.17 in 1987 to 0.25 in 1991 and 0.33 in 2001 (Chen, Datt and Ravallion 2004). Wu and Perloff (2004) track income inequality from 1985 to 2001, using NBS summary statistics by income interval and find almost consecutive increases in the Gini coefficient over the years, from 0.191 in 1985 to 0.269 in 2001. Their estimates are lower than those by other researchers, possibly because summary statistics based on household survey data were used instead of actual survey data.

Table 1
Comparison of Gini coefficient estimates for urban China in the literature
(Note: All studies defined income by per capita household disposable income)

	Sources (details below)					
Year	(1)	(2)	(3)	(4)	(5)	(6)
1981		0.18				
1985		0.17	0.191			
1986			0.189			
1987		0.17	0.194			
1988			0.201	0.230		0.233
1989			0.198			
1990	0.23		0.198			
1991	0.24	0.25	0.184	0.230		
1992	0.25	0.24	0.200		0.244	
1993	0.27	0.28	0.219			
1994	0.30	0.29	0.229		0.300	
1995	0.28	0.28	0.221	0.280	0.302	0.332
1996	0.28	0.29	0.221	0.280	0.298	
1997	0.29	0.29	0.232	0.290	0.303	
1998	0.30	0.30	0.239	0.297	0.312	
1999	0.30	0.32	0.246	0.302		
2000	0.32		0.258	0.314		
2001	0.32	0.33	0.269	0.323		
2002				0.319		0.318

Sources:		Dataset:
Column (1)	NBS official estimates (Li 2003)	NBS survey data
Column (2)	Chen, Datt and Ravallion (2004)	NBS survey data
Column (3)	Wu and Perloff (2004)	NBS summary statistics by income interval
Column (4)	Li and Yue (2004); Chang (2002)	NBS survey data
Column (5)	Fang, Zhang and Fan (2002)	NBS survey data
Column (6)	Khan and Riskin (1998; 2004)	CHIP survey data

A set of different studies using the NBS household survey data have verified this trend (Chang 2002; Li and Yue 2004). These studies note that income inequality increased from 0.23 in 1988 to 0.28 in 1995 and 0.319 in 2002. Using the same data, Fang, Zhang and Fan (2002) find that income inequality rose from 0.244 in 1992 to 0.302 in 1995; after a slight declination in 1996 (0.298), it increased to 0.312 in 1998. Using the CHIP survey data, researchers find that income inequality increased from 0.233 in 1988 to 0.332 in 1995, then declined slightly to 0.318 in 2002 (Gustafsson and Li 2001; Khan and Riskin 1998, 2004; Meng 2003).

The studies reviewed above use the per capita disposable household income to generate the Gini coefficient estimate. This includes cash income from social benefits but ignores major in-kind or reimbursed benefits such as health, education, housing and other in-kind benefits originating from the work unit. Further, simply lumping together market income and cash transfers cannot provide a clear picture of the contribution of government social benefits on the reduction of inequality. This article addresses these weaknesses.

3 Data, measures and methods

3.1 Data

This analysis uses data from the China Household Income Project (CHIP) 1988 and 2002 surveys, collectively designed by a group of Chinese and western economists and conducted by the Institute of Economics, Chinese Academy of Social Sciences (CASS) (Griffin and Zhao 1993; Li and Knight 2004). The surveys were conducted in 1989 and 2003, collecting income data for the previous years, respectively. Because welfare reforms were initiated in the early 1980s and the most significant changes date from the late 1980s, this study tries to approximate the social benefits of the urban regions before and after reform. Samples of the CHIP study were drawn from larger samples of the National Bureau of Statistics (NBS) using a multistage stratified probability sampling method. Sampling units—namely province, city, county, township, village and household—were ranked according to average per capita income at each level, then a random starting point was selected and a fixed interval was used so that the designed number of units was satisfied. Appendix Table 1 presents the sample design of the two waves of data. More details on the design and sampling methods of the CHIP surveys can be found in Eichen and Zhang (1993).

To make the analytical results compatible over the period, we limit the sample to the ten provinces sampled in both years, and these are grouped into three regions: eastern (Liaoning, Jiangsu and Guangdong), central (Beijing, Shanxi, Anhui, Henan and Hubei) and western regions (Yunnan and Gansu). There are 8,996 households and 31,775 individuals in the 1988 sample and 5,969 households and 18,109 individuals in the 2002 sample.

3.2 Measures

Household income

The household post-tax post-transfer income is measured in both 1988 and 2002 as the sum of pre-tax pre-transfer market income, social benefits and private transfers minus taxes and fees paid. We aggregate the incomes at household level, but keep the analysis at the individual level. For this, economic resources are assumed to be equally shared among

household members, regardless of age, gender and employment status. Thus all analyses in this study are based on the annual per capita household income.[3] Individuals or families reporting no income from extra sources or those to whom certain income types did not apply were imputed zero income for these sources. All other missing values (very few in most cases) are imputed using multiple regression models controlling for individual and household sociodemographic characteristics. Health benefits in 1988 and education benefits in both years are the exception and are imputed using administrative data.

The pre-tax pre-transfer market income in both survey years consisted of four elements: (i) market earnings from working for an employer; (ii) market income accruing from one's own private enterprise or self-employment; (iii) property income; and (iv) rental value of owner-occupied housing. Market earnings made up the biggest portion of market income. These covered salary (including bonuses) from working for an employer, wages from secondary jobs and other income from compensation (*peichang*),[4] fees paid by relatives or friends who regularly ate in and in-kind income received from others in the form of payment. Each individual in the household was asked about their income from each source in both years. The individual incomes were summed at the household level and divided by household size to yield household per capita values.

Those who had private enterprises or were self-employed were asked about their income from such activities, minus taxes and paid fees.[5] Property income included income from interests on saving accounts and bonds, dividends, subletting housing and other properties, intelligent property and other properties. Rental value of owner-occupied housing is measured by subtracting the amount of the debt or loan on the housing from its estimated market rent. In 1988, market value of rent was not directly collected in the survey and thus is estimated by a formula adopted by the CHIP Research Team (1993), accounting for both provincial construction costs at the time and sanitary facilities of the house as reported by the survey participants.[6] In 2002 families were asked to estimate the market rental value of the housing. The rental value of owner-occupied housing is then imputed by subtracting the self-reported housing debt or loans from the estimated market rental value. The rental value of owner-occupied housing accounted for 8 per cent of the household's pre-tax pre-transfer market income in 1988 and 5 per cent in 2002.

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3 Different equivalent scales have been proposed and adopted in existing literature, mostly in conjunction with the study of western industrialized nations. Some scales are proposed for studying developing countries, but there seems no particular fit for urban Chinese households. We also ran the results using the OECD equivalent scale that accounts for household size by dividing household income by the square root of household size (Atkinson, Rainwater and Smeeding 1995) and the results remain largely the same.

4 'Income from compensation' was not clearly defined in the surveys, so they were based on the individual interpretation of the survey participant.

5 In 1988 taxes and fees paid for private enterprises or self-employment were recorded separately, and then subtracted from the total reported pre-tax pre-transfer income for this type of employment. In 2002, families were asked to report directly the net income from private enterprises or self-employment. Thus the two years' data are compatible in this regard, but it was impossible to know the amount of taxes and fees paid for private enterprises or self-employment in 2002.

6 The formula is: rental value of public housing=0.08*C*(total living area square meter + auxiliary area square meter)*(1+s), where C is provincial construction cost per square meter and s is an index for sanitary facilities in housing (s=-0.33 if house lacks sanitary facilities; s=-0.25 if house shares sanitary facilities; s=-0.15 if house has toilet but lacks bath; and s=-0.10 if house has both toilet and bath). We adopted the values of C and s from CHIP 1988 SAS programme for computing income at ICPSR.

Private transfer incomes were directly obtained from the survey questions and in both years these included alimony, elderly support, gifts and other transfers from family, friends, or relatives.

Information on taxes and fees paid by households was collected in both waves, but in a different manner. The 1988 survey recorded taxes and fees paid by individual private enterprises, but did not specify personal income taxes or compulsory social insurance contributions (including pension, housing account, health and unemployment insurance contributions), while the 2002 survey did exactly the opposite. This may lead to an underestimation of taxes and fees in both years. It is true that personal income taxes and social security contributions were insignificant in 1988, and that taxes in 2002 from individual private enterprises might also be small, given that only a small portion of the labour force was engaged in the private sector. However, it is difficult to know the exact magnitude of each and thus difficult to get a clear understanding of which year's underestimation is larger.

Using these self-reported measures of taxes and fees is an unsatisfactory estimation method. The best approach is to conduct a balance budget tax simulation to fully evaluate the social benefits. However, two aspects hinder such an exercise. First, one major financing source of the Chinese government after individual or household taxes has been firm or enterprise taxes, especially before economic reforms. Theoretically, firm taxes are de facto taxes from employees and should, therefore, be calculated as part of their pre-tax pre-transfer market income and then subtracted as part of taxes paid. However, there is no clear ruling on what portion of social benefits are being financed by firm taxes and individual taxes, or which could be used for taxation simulation.

Second, even though the taxation schemes for urban and rural areas are different, it is very likely that the Chinese government pools the resources for reallocation across the urban-rural division. Thus it is incorrect to assume a balanced budget taxation within the respective urban or rural areas. Moreover, there is no evidence on what portions or types of rural/urban taxes are used to finance social benefits, and this makes it impossible to simulate taxes across the urban-rural division line.

Therefore, the complex taxation issue is beyond the scope of this study and we adopt the self-reported taxes and fees as the best available measure. Future work may explore in detail the financing scheme of China's social benefits to develop better measures of taxation at the micro level.

Social benefits

In this study both government- and employer-provided benefits are considered to constitute social benefits. Most work units before reforms were public institutions, or state-owned or collective enterprises. Even though many employment-related benefits were directly financed through the operational expenses of each work unit, ultimate responsibility was borne by the government because the work unit was considered as an appendage of the state and thus not responsible for its profits and losses (Leung 2003; Saunders and Shang 2001). More than half of all urban employees still work in such institutions or enterprises. Given the socialist nature of these work units, the benefits provided should be counted as social benefits.

The current analysis also considers the benefits that are received by the minority of the labourforce employed in private institutions or enterprises as social benefits because these

benefits serve the same function as public benefits in supporting families. Therefore, from the viewpoint of the household, these private benefits are the same as social benefits. This, however, might be a weakness. Future research could address this issue by either separating benefits provided by private enterprises or dropping such benefits from the total package.

Cash transfers

Cash transfer benefits are grouped into three categories: (i) social insurance, (ii) supplementary income and (iii) public assistance. The value of all cash transfers was directly identified in the survey, summed at the household level and then divided by household size to calculate per capita values. In the 1988 survey, social insurance was composed of a pension and retirement subsidies for retirees. Supplementary income included the one-child subsidy and living subsidies for heating, water and electricity, books and newspapers, bathing and haircuts, transportation and rational fuel supply. The hardship allowance was the only type of public assistance that families received in 1988.

In 2002, retirement subsidies were eliminated and social insurance was made up of only the pension. Supplementary income included price and regional subsidies. In addition to the hardship allowance, public assistance in 2002 covered a living subsidy for the laid-off and the minimum living standard assurance subsidy.

Health

Health benefits were measured in 1988 and 2002 according to a different criterion. As health benefits were not directly identified in the 1988 survey, they are imputed with provincial level administrative data on public expenditure per capita on employee healthcare, including both government and employer contributions. The administrative data differentiate public health expenditures on employees for three types of employers (state, collective and other enterprises) and retirees.[7] Public institutions are treated as state enterprises.

Provincial health expenditure per capita for current employees is obtained by dividing the total provincial health spending (NSB and Ministry of Labour 1989) by the number of employees (*China Labor Yearbook 1991*) according to employer type. Provincial health expenditure per capita for retirees is calculated in a similar manner based on data from *China Labor and Wage Statistical Yearbook 1989* (NSB and Ministry of Labour 1989). These are then imputed to individuals according to their employment status and type. Appendix Table 2 presents the administrative data in 1988 on the provincial health expenditure per capita.

For example, suppose we have a family from Beijing with four members: a middle-aged couple, a retired elderly person who is one of the couple's parents and the couple's teenager child studying at school. Suppose one of the spouses works in a state enterprise and the other in a collective enterprise, they are assigned the values of CNY 186.46 and CNY 111.57, respectively, as their health benefits. The retiree is assigned an imputed value of CNY 394.32 for health benefits and the student zero. The health benefits are then pooled, yielding a total of CNY 692.35 and divided by household size to obtain the household per capita health benefit of CNY 173.09.

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7 Administrative data on public health expenditures for retirees of different types of employers do exist. However, the survey data do not contain information on retirees' employer type. Therefore provincial public health expenditure per capita for retirees is computed by dividing the total public health expenditures on retirees across employment types by the total number of retirees.

The 2002 survey recorded directly the amounts paid either by the government or employer for individual healthcare fees, as well as the cash value of in-kind health benefits provided by employer. These values are summed at the household level and then divided by household size to obtain the per capita health benefit in 2002. Using this measure, the household health benefit per capita is CNY 594 (CNY 587 if in-kind health benefits provided by the work unit are not counted).

The inconsistency in methods of measure across the two years may affect the results and is thus is concern. Administrative data are used to estimate individual-level health benefits in 2002 as a sensitivity test, so as to be compatible with the 1988 data. Per capita public health expenditure in 2002 is obtained by dividing total contributions to provincial health expenditure by the government, employers and individuals by the total number of contributors (including both employees and retirees). We then use two approaches to impute micro-level data. One approach is to assign the provincial per capita health expenditure to individuals contributing to a health insurance plan; this results in a per capita health benefit of CNY 118. The other method is to estimate the provincial level proportion of contributors out of the total number of employees and retirees, and then impute provincial per capita health expenditure for all employees and retirees adjusted by the proportion. For example, administrative data show that in Beijing 43 per cent of employees and 62 per cent of retirees contributed to health insurance in 2002. Then the health benefit for each employed Beijing resident is imputed at CNY 491 (43 per cent of the aggregate per capita health expense of CNY 1,135) and for each retiree CNY 703 (62 per cent of CNY 1,135). The imputed individual-level benefits are then summed at the household level and divided by the household size to obtain the per capita measure. This approach yields a per capita health benefit of CNY 174. Both approaches of the sensitivity test result in a much lower level of health benefits than the self-reported value.

The difference between the 2002 estimations using survey data and administrative data is somewhat worrisome. There is no clear evidence indicating the source of the inconsistency. However, there is no reason to question the quality of the self-reported survey data which are the main source of this analysis. Therefore, we consider the survey data estimate to be more reliable and adopt it for this study. The inconsistency, however, will still be borne in mind and will be further explored through future endeavours.

Education

Education benefits are imputed using administrative data on the provincial per capita education expenditure by educational levels in both years. Data on the provincial education expenditure per capita are derived from the *China Education Expenditure Statistical Yearbook* (CEESY) (2003) and *China Provincial Education Expenditure Annual Development Report 1989* (Ministry of Education 1989). The 1988 data do not distinguish urban and rural expenditures. Therefore the national average education expenditure is imputed for each enrolled student according to his/her school type (elementary or junior highschool). The 2003 data differentiate between expenditures for elementary and junior highschool for urban and rural areas to reflect the gap existing in the government's educational investment between the two groups. However, they provide direct data only on the overall per capita expenditure at the provincial level as well as the per capita expenditure for rural areas. To estimate the per capita education expenditure for elementary and junior highschool students in urban communities, we use the following formula:

$$E_{urban} = \frac{E_{all} N_{all} - E_{rural} N_{rural}}{N_{urban}}$$

where,

E denotes the per capita education expenditure

N denotes the total number of students enrolled

all denotes the overall provincial level

urban denotes urban areas within a province

rural denotes the rural areas within a province.

The number of enrolled students is taken from the *China Statistical Yearbook* (NBS 2003), based on three geographic classifications:[8] urban areas (*chengshi*), counties and towns (*xianzhen*) and rural areas (*nongcun*). There is no formal documentation on the rules classifying the three areas. Because the majority of enrolled students in the 'county and town' schools are actually from villages and because the county-and-town per capita expenditures are closer to those in the rural areas, we assume that the counties and towns are a part of the rural areas.[9] Appendix Table 3 presents the provincial per capita health expenditure administrative data in 1988 and 2002.

This measure does not capture other important education benefits in the Chinese context: (i) early childhood education and care (ECEC) benefits; (ii) higher education benefits; and (iii) other cash or in-kind education benefits provided by employer. First, the ECEC benefit was only identified in the 1988 survey but not in 2002 and the lack of administrative data on ECEC in China prevents imputation. Second, administrative data on higher education (technology or vocational, normal school and college or university) are available in both years. However, students in these institutions often lived on campus dorms in both years and thus were most likely not covered in the household surveys. Third, some employers—particularly public institutions and state and collective enterprises—often provided other cash or in-kind education benefits such as advanced training and educational material to employees, especially before and during the early stages of the reforms. The 2002 survey recorded these educational benefits, but similar questions were not included in the 1988 survey. For consistency, this study does not include this type of education benefits.

Housing

Information on both in-kind and cash housing benefits were collected in both surveys. In 1988, families were asked whether they were living in public housing. If yes, the rental value of their housing is imputed with the same formula as used with the owner-occupied housing rental value (CHIP Research Team 1993). In 2002, families living in public housing were also asked to evaluate its estimated market rental value. The in-kind public housing benefit is thus calculated as the rental value of housing minus self-paid rent, if any. In addition, both

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8 CSY (2003) provides data on the total number of students enrolled in both senior middle school and junior middle school as well as the number of just the senior middle school students at each of the three areas. We subtracted the number of senior highschool students from the total to obtain the number of junior middle school students.

9 We also tried treating 'counties and towns' as part of the urban areas, without a major difference in the final results.

surveys evaluated any additional cash or in-kind housing benefits received from the employer. All housing benefits are summarized at the household level and then divided by household size to yield the family's housing benefits per capita.

Food

Information in the 1988 survey on food assistance included family reports on income from price subsidies for nonstaple foods received by both working and non-working members, food ration coupon subsidy and values of in-kind food received as 'welfare goods'. Food benefits had been considerably reduced as a result of policy changes, and in the 2002 survey families were asked only about the value of any in-kind food items provided by their workplaces.

Other in-kind benefits

Other in-kind benefits in 1988 included the value for daily-use and durable in-kind goods received as 'welfare goods' from the government and other in-kind items from the workplace. Note that many other in-kind benefits, such as the free supply of water in the house, employer-paid home phone service and even baths taken at the workplace bathhouse, were also recorded in the 1988 survey, but their values were difficult to impute. Thus they are not presented in the results of this study. This, however, may lead to underestimation of the 1988 public benefits, mostly from employers. In 2002 families were asked to report the value of clothing, home equipment or services, communication and transportation and other miscellaneous goods or services (other than health, education, housing and food) provided by employers.

Comparing 1988 and 2002

To compare the levels of income and benefits across the two years, the consumer price index (CPI) is used to convert the 1988 values to constant 2002 values. From the calculations based on official urban CPI data (NBS 1996, 2004), CNY 39.7 in 1988 is equivalent to CNY 100 in 2002 in constant value. Thus, all 1988 nominal values are divided by 39.7 and multiplied by 100 for conversion to 2002 constant values.

3.3 Demographic characteristics

Several major demographic characteristics of the household head are considered to be important in determining the level of household income and social benefits. The head of the household was self-identified in the surveys, conventionally but not always, by referring to the most educated working member of the household. Household head's age, ethnicity (minority or Han), marital status, gender if unmarried, Chinese Communist Party (CCP) membership, education level and employment status and type are considered.

Age is measured as a continuous variable. Ethnicity and CCP membership are dichotomous variables, taking the value of 1 when household head is of ethnic minority or a CCP member. Household heads are classified according to their marital status and gender: (i) married; (ii) unmarried female head and (iii) unmarried male head. Education level is measured in five categories: primary school or less, junior highschool, senior highschool or equivalent secondary technology school, junior college (two-year college called *dazhuan*) or college and college education or above. Employment status is categorized into four groups: employed by

a public institution, state-owned, or collective enterprise; employed at other types of institutions or enterprises (mainly private); retired; and unemployed.

At the household level, household size and region of residency are considered. In addition, to measure the overall household size, we also calculate the numbers of children (less than 18 years old), elders (older than 60 years) and other adults (aged between 18 and 60 years). The three regions are eastern (including Liaoning, Jiangsu and Guangdong provinces), central (Beijing, Shanxi, Anhui, Henan and Hubei) and western regions (Yunnan and Gansu).

3.4 Income distribution and inequality

The pre-tax pre-transfer income deciles reflect the relative position of a household versus market income distribution. It is a strong determinant of the levels of social benefit received by households, particularly with regard to means-tested benefits. The pre-tax pre-transfer income decile itself is usually the outcome of various demographic characteristics such as age, gender, ethnicity, marital status, education and employment status.

Income inequality is measured with two broad approaches. The first is to compare the income shares held by each pre-tax pre-transfer income decile, each comprising 10 per cent of the total population. The more income shares accumulating to the top income deciles or the less income shares at the bottom income deciles, the higher the overall income inequality.

The second approach is to adopt several major income inequality indices, including the p90/p10 decile dispersion ratio, the Gini coefficient and the Atkinson index. The p90/p10 decile dispersion ratio reflects the gap between society's richest and poorest income groups. However, it only takes two data points along the income distribution, ignoring others. The Gini coefficient is the most widely used inequality measure because of its independence from income mean and population size and its sensitivity to income transfers between population groups. The Atkinson index is one of the few inequality measures that explicitly incorporates normative judgements on social welfare. Its parameter e reflects the strength of society's preference for equality. Typically used values of e include 0.5, 1 and 2. As e rises, society attaches more weight to income transfers at the lower end of the distribution and less weight to transfers at the top (Atkinson 1970; Kawachi 2000).

3.5 Methods

Estimating the determinants of social benefits

The first research issue in this article concerns the relationship between the pre-tax pre-transfer market income and other demographic characteristics and the level of social benefits received by households. The dependent variables include the level of total household social benefits as well as social benefits by domain (cash transfers, health, education, housing, food and other in-kind). Three sets of independent variables—household head demographics, household characteristics and pre-tax pre-transfer income decile dummies—are included.

Two steps are taken to find the answer to this question. First, the average level of social benefits is summarized according to the pre-tax pre-transfer income decile and other demographic groups to identify the pattern of association between the two sets of variables.

Second, we use OLS regression models to detect significant determinants of social benefit levels.[10] Our particular purpose is to understand the effects of demographic characteristics on social benefits, controlling for pre-tax pre-transfer market income.

Estimating the impact of social benefits on income inequality

As shown by the results of an earlier study (Gao 2006), the difference between pre- and post-transfer income is mostly due to the reallocation of government and employer social benefits.[11] Therefore, the change in income inequality from the pre- to post-transfer level is considered to constitute the impact of social benefits. It is important to note that behavioural effects of the social benefits are beyond the scope of this study and are thus ignored in the current analysis. Empirical evidence suggests that more generous cash social benefits often lead to decreased labour supply, while withdrawing benefits can result in increased market work. On the other hand, the effects of education and health are likely to increase effective labour supply.

Using the first approach of measuring income inequality, i.e., comparing income shares across pre-tax pre-transfer income deciles, we examine the income share gaps of each pre-tax pre-transfer income decile—particularly the bottom and top deciles—before and after social benefit transfers. Compared to the second approach which uses only summarizing indices, this approach shows in more detail the redistributional dynamics of social benefits along income distribution.

In the second approach, i.e., adopting the three income inequality indices, we estimate two differences: value change, calculated as the difference between the pre- and post-transfer income inequality levels and a percentage change, which is equal to the value change as a percentage of the pre-tax pre-transfer income inequality level. The larger the percentage change in 1988 or 2002, the bigger the redistributive role of social benefits in that year, given that the percentage change, rather than value change, measures the impact conditional on the pre-tax pre-transfer income inequality level.

4 Descriptive statistics of demographic characteristics by pre-tax pre-transfer income decile

4.1 Household head demographics

Table 2 presents the demographics of household heads by the pre-tax pre-transfer income deciles. Overall, the average age of household heads in 1988 was 44 years old and 48 years in 2002. The four-year increase in the age of the household head reflects the increasing postponement of marriage and children. The bottom deciles tended to have older household heads (average age 48 years in 1988 and 62 years in 2002) than in other deciles. The household heads of the bottom two deciles in 2002 in particular were older than

10 We do not run regression models on whether families receive certain domains of social benefit because most families receive all of these benefits and the sample sizes of non-recipients were often quite small.

11 The value of private transfers and taxes and fees paid is both quite small.

Table 2
Demographics of household heads according to pre-tax pre-transfer income deciles in urban China: 1988 and 2002

			Unmarried				Education (level of schooling)					Employment status/type			
Decile	Age	Married	Female	Male	Minority	CCP	<=Primary	Junior high	Senior high	Partial college	College+	Public	Private	Retired	Unemployed
1988															
1st	48.01	0.81	0.10	0.09	0.04	0.28	0.29	0.36	0.26	0.05	0.04	0.64	0.02	0.34	0.00
2nd	42.80	0.90	0.04	0.06	0.04	0.33	0.19	0.39	0.30	0.06	0.05	0.90	0.02	0.09	0.00
3rd	43.32	0.94	0.03	0.03	0.04	0.38	0.17	0.34	0.33	0.07	0.09	0.94	0.01	0.05	0.00
4th	42.60	0.95	0.03	0.02	0.05	0.41	0.18	0.33	0.32	0.08	0.09	0.95	0.02	0.03	0.00
5th	42.38	0.95	0.04	0.01	0.04	0.40	0.15	0.39	0.28	0.08	0.09	0.96	0.02	0.02	0.00
6th	42.07	0.95	0.02	0.03	0.03	0.40	0.15	0.37	0.31	0.08	0.09	0.98	0.01	0.02	0.00
7th	43.16	0.96	0.02	0.02	0.04	0.44	0.14	0.34	0.31	0.10	0.12	0.96	0.01	0.03	0.00
8th	43.06	0.95	0.02	0.03	0.03	0.44	0.09	0.35	0.35	0.09	0.10	0.97	0.01	0.02	0.00
9th	45.06	0.94	0.03	0.03	0.05	0.44	0.16	0.35	0.27	0.09	0.13	0.94	0.03	0.04	0.00
10th	46.39	0.93	0.04	0.04	0.04	0.41	0.17	0.36	0.29	0.06	0.11	0.91	0.05	0.04	0.00
All	43.88	0.93	0.04	0.04	0.04	0.39	0.17	0.36	0.30	0.08	0.09	0.92	0.02	0.07	0.00
2002															
1st	62.22	0.94	0.05	0.02	0.05	0.40	0.20	0.39	0.28	0.07	0.06	0.06	0.05	0.83	0.06
2nd	51.86	0.93	0.05	0.02	0.04	0.30	0.16	0.41	0.35	0.06	0.02	0.27	0.21	0.41	0.12
3rd	47.04	0.95	0.03	0.01	0.06	0.30	0.09	0.39	0.38	0.10	0.03	0.40	0.27	0.27	0.07
4th	46.86	0.95	0.04	0.01	0.05	0.33	0.10	0.33	0.36	0.17	0.03	0.48	0.25	0.23	0.04
5th	45.69	0.95	0.03	0.01	0.05	0.34	0.05	0.32	0.41	0.17	0.06	0.53	0.22	0.20	0.04
6th	45.13	0.97	0.02	0.01	0.04	0.34	0.02	0.29	0.42	0.21	0.06	0.61	0.21	0.14	0.04
7th	44.85	0.96	0.03	0.00	0.04	0.40	0.04	0.24	0.41	0.21	0.10	0.64	0.20	0.13	0.02
8th	43.73	0.96	0.03	0.01	0.04	0.42	0.03	0.20	0.40	0.25	0.13	0.65	0.22	0.12	0.02
9th	44.65	0.98	0.02	0.00	0.04	0.46	0.02	0.17	0.37	0.28	0.16	0.73	0.16	0.10	0.02
10th	45.33	0.97	0.02	0.01	0.05	0.52	0.01	0.11	0.34	0.31	0.23	0.70	0.21	0.08	0.01
All	47.74	0.96	0.03	0.01	0.05	0.38	0.07	0.29	0.37	0.18	0.09	0.51	0.20	0.25	0.04

Source: Author's calculations using the CHIP data.

those in 1988 and other decile groups in 2002, corresponding to China's incremental ageing process, particularly in urban areas, since the economic reforms.[12]

There were more unmarried household heads in 1988 than in 2002. These were more likely to be at the bottom pre-tax pre-transfer income decile in both years, particularly in 1988. The proportion of ethnic minorities did not change much across the two years and seemed not to be related to pre-tax pre-transfer income distribution in the survey of either year. In 1988, CCP membership was clearly and positively related to the pre-tax pre-transfer income level. A similar pattern was largely maintained in 2002 except that the bottom income decile had a more-than-average proportion (40 per cent relative to the average of 38 per cent) of CCP members.

Household education levels appeared to be positively related to market income levels, to a much greater degree in 2002 than in 1988. Households whose heads had primary school education or less were disproportionately at the bottom of the pre-tax pre-transfer income distribution in both years. Consistently, households heads with more than senior highschool education—particularly those with college education or above—were concentrated at the higher end of the income distribution, more so in 2002 than in 1988. Such a phenomenon corresponds to the observed trend that education, rather than family background, has played an increasingly significant role in upward mobility and socioeconomic achievement since the economic reforms.

In 1988, the vast majority (92 per cent) of household heads were employed by public institutions or state-owned or collective enterprises. Only 2 per cent were employed by private institutions and 7 per cent retired. None of the household heads were unemployed in 1988, reflecting the pre-reform policy of 'full employment' that was largely in existence even at the beginning stages of reform. By 2002, only half of the household heads were employed by public institutions or enterprises,[13] while the share of those employed by private institutions had increased to 20 per cent. The retirees accounted for a quarter of all household heads in 2002, partly due to increasing ageing during the period and partly because of the new application of forced 'early retirement' from state-owned or collective enterprises at a younger age (usually 55 years for males and 50 years for females). Four percent of household heads were unemployed in 2002. In both years, the bottom pre-tax pre-transfer income deciles were dominated by households with retirees as heads. The bottom three deciles, in particular the 2nd, had in 2002 disproportionately more unemployed household heads.

4.2 Household characteristics

Table 3 presents household size, the number of household members in the different age groups and the region of residency according to pre-tax pre-transfer income deciles in both years. Overall, household size dropped from 3.84 in 1988 to 3.24 in 2002, with the

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12 According to national data, the portion of the elderly aged 65+ increased from 5.57 per cent in 1990 to 8.16 per cent in 2002 (NBS 2004).

13 The 2002 data show that households headed by individuals who work in public institutions received more benefits than those in state-owned or collective enterprises. However, as the data for 1988 could not distinguish between the two, we combined them in both years to render the data comparable across the two surveys.

Table 3
Household characteristics according to pre-tax pre-transfer income deciles
in urban China: 1988 and 2002

		No. of members by age group			Region		
Decile	Household size	Children (<18 yrs)	Elders (>60 yrs)	Other adults (18-60 yrs)	Eastern	Central	Western
1988							
1st	4.08	1.19	0.68	2.22	0.16	0.62	0.22
2nd	4.28	1.36	0.42	2.50	0.19	0.63	0.18
3rd	4.10	1.26	0.29	2.55	0.26	0.54	0.20
4th	3.98	1.20	0.25	2.54	0.27	0.53	0.19
5th	3.85	1.11	0.21	2.53	0.31	0.52	0.17
6th	3.75	1.06	0.17	2.51	0.37	0.45	0.18
7th	3.64	0.92	0.17	2.55	0.36	0.47	0.17
8th	3.60	0.90	0.15	2.55	0.40	0.43	0.17
9th	3.61	0.83	0.18	2.60	0.48	0.37	0.15
10th	3.48	0.68	0.23	2.58	0.60	0.26	0.14
All	3.84	1.05	0.27	2.51	0.34	0.48	0.18
2002							
1st	2.98	0.40	1.31	1.27	0.26	0.55	0.19
2nd	3.66	0.67	0.69	2.30	0.30	0.55	0.16
3rd	3.52	0.71	0.42	2.39	0.28	0.54	0.18
4th	3.41	0.66	0.31	2.44	0.29	0.53	0.18
5th	3.29	0.64	0.26	2.40	0.29	0.54	0.17
6th	3.28	0.64	0.18	2.46	0.35	0.49	0.16
7th	3.19	0.62	0.15	2.43	0.34	0.47	0.19
8th	3.13	0.63	0.15	2.36	0.35	0.45	0.20
9th	3.03	0.54	0.11	2.38	0.39	0.43	0.18
10th	2.89	0.44	0.06	2.39	0.51	0.40	0.09
All	3.24	0.59	0.36	2.28	0.34	0.50	0.17

Source: Author's calculations using the CHIP data.

number of children nearly halved (from 1.05 to 0.59) and the number of elders increasing (from 0.27 to 0.36). Households with more children appeared to have less market income in both years, with the exception of the bottom decile in 2002. In contrast, households at the lower end of income distribution had disproportionately more elderly members. This was most noticeable in the bottom decile in 2002 and may explain why the bottom decile in 2002 had fewer children than other groups. Consistently, the bottom decile also had significantly fewer other adults in 2002 compared to 1988. These facts confirm that the presence of elders in the household largely determines the lag in market income in both years, particularly to a greater degree in 2002.

Consistent with the literature, households living in the most developed eastern region were concentrated at the higher end of the income distribution, while those in the other two regions were more likely to be at the lower end in both 1988 and 2002. Strikingly, such trend was more predominant in 1988 than in 2002, indicating that the economic reforms may have benefited to a larger degree those in central and western regions than in the eastern region.

5 Associations between social benefit levels and pre-tax pre-transfer market income and demographics

This section examines the association between the level of social benefit received by households and their pre-tax pre-transfer market income and demographic characteristics.

5.1 Social benefit levels by pre-tax pre-transfer income decile

Table 4 presents the average social benefit levels and household post-tax post-transfer income by pre-tax pre-transfer income deciles in 1988 and 2002. Column 1 shows the distribution of total social benefits by pre-tax pre-transfer income decile. The bottom deciles, being heavily targeted, received in both years more social benefits than other income groups. The magnitudes of the total social benefits received by the bottom deciles indicate that social benefits, however, reallocated more resources towards the bottom decile in 2002 (a surprisingly high of CNY 7,474 relative to the overall average of CNY 2,743, 2.5 times greater) than in 1988 (only CNY 2,478 relative to the overall average of CNY 2,077). This can be explained by the higher concentration rate of elders—who received little market income but more pension income—in this income

Table 4
Mean social benefit levels by pre-tax pre-transfer income decile in urban China: 1988 and 2002

		Social benefits by domain						
	Total social benefits	Cash transfers	Health	Education	Housing	Food	Other in-kind	Post-tax post-transfer income
1988								
1st	2,478	973	197	75	807	425	1	3,454
2nd	1,875	465	163	80	709	455	3	3,377
3rd	1,811	372	161	85	726	463	4	3,588
4th	1,849	331	167	83	752	513	3	3,836
5th	1,887	339	177	81	769	517	3	4,082
6th	1,904	310	179	81	811	517	5	4,308
7th	2,008	377	192	71	815	547	5	4,668
8th	2,059	363	200	71	854	562	9	5,063
9th	2,183	367	217	67	966	555	11	5,725
10th	2,721	441	245	61	1,414	543	18	8,468
All	2,077	434	190	75	862	510	6	4,656
2002								
1st	7,474	5,543	1,573	90	251	15	2	8,426
2nd	2,886	2,136	315	202	210	19	4	5,306
3rd	1,994	1,409	127	236	197	22	4	5,344
4th	2,535	1,251	789	227	233	28	8	6,836
5th	1,936	1,088	327	242	234	32	13	7,060
6th	2,100	1,044	526	248	229	41	11	8,095
7th	1,731	858	295	278	246	42	13	8,783
8th	1,804	917	311	286	223	51	17	10,125
9th	2,689	797	1,045	310	452	69	16	12,963
10th	2,272	779	636	333	344	148	32	19,380
All	2,743	1,583	594	245	262	47	12	9,231

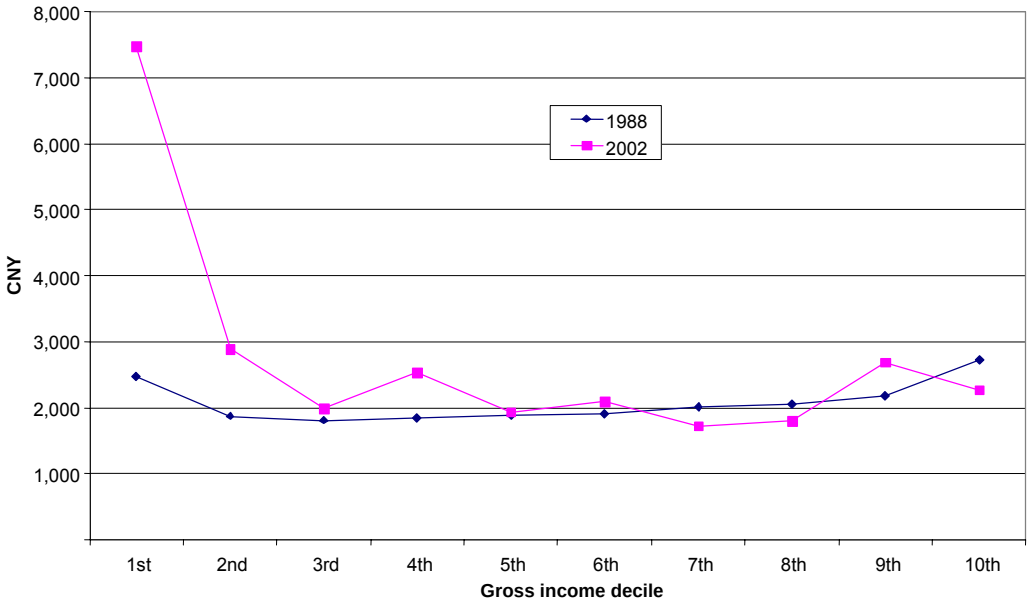
Source: Author's calculations using the CHIP data.

group in 2002 than in 1988: the average age of household heads in the bottom decile was 62 years in 2002 compared to only 48 in 1988 (which was still older than in other decile groups).[14] Regression analysis would be able to verify this association.

Second, the two years show different social benefit redistributional patterns across pre-tax pre-transfer income deciles as shown in Figure 1. Excluding the bottom decile, social benefits were distributed by and large regressively across income groups in 1988, with the top decile gaining a substantial bulk. In 2002, by contrast, leaving the bottom decile aside, the distribution of social benefits fluctuated in moving from the lower to the higher end of the income distribution, but without a clear pattern.

In terms of the different social benefit domains, *cash transfers* were heavily targeted at the bottom two deciles, in particular the very bottom decile, especially in 2002. Similarly, this might also be due to the high proportion of pensioners at the bottom of income distribution. Another factor might be the growing number of unemployed in 2002, which increased the possibility of receiving public assistance at the bottom decile.

Figure 1
Total social benefits by pre-tax pre-transfer income deciles in urban China



Source: Author's calculations using the CHIP data.

Health benefits were somewhat more evenly reallocated across pre-tax pre-transfer income deciles in 1988 than in 2002, although in both years the bottom decile and the top two deciles received more health benefits than other income groups. The bottom decile was likely to receive more health benefits because they had a greater number of elderly members (especially in 2002) who usually incur higher health costs than other age groups. The top income groups received more health benefits possibly because of their higher employment status that was strongly linked to a more generous provision of health benefits by employers. However, the distribution of health benefits across pre-tax pre-transfer income deciles in 2002 is still puzzling. The benefit level of the 4th decile

[14] Based on the author's calculation using the CHIP urban data.

was higher than the average and its neighbouring deciles; the 9th decile received unusually high health benefits.

Education benefits were skewed towards the lower pre-tax pre-transfer income groups in 1988, but were distributed regressively in 2002, with higher income groups at an advantage. Three factors may have contributed to this trend. First, primary and secondary school enrolment was low in the late 1980s,[15] particularly among low-income families, due to the attraction offered by the newly emerging market economy. Because low-income families tended to have more children than higher-income families, their low enrolment rate in fact partly equalized the per capita education benefits across the rich and the poor. Second, pre-tax pre-transfer market income and education levels since the economic reforms became more positively related in 2002 than in 1988. Under the pre-reform 'iron bowl' system which was still broadly in place in 1988, jobs and associated wage levels were largely determined by parental work status rather than self-achievement. By 2002, education had become the major upward channel for mobility and a more significant predictor of market income. Therefore, parents wanted to send their children to school and education benefits as a whole increased. Third, educational reform in the late 1980s decentralized responsibility for financing education from central to local governments. Thus, government educational expenditure became closely related to the economic development and capacity of the locality. Because richer families tended to live in more developed provinces and districts, they appeared to enjoy more education benefits in 2002.

Housing benefits were largely distributed regressively along the pre-tax pre-transfer income distribution in both years, despite that they somewhat targeted to the bottom decile. Most likely, the bottom deciles received in both years more housing benefits because of the high portions of elders in this group and their access to housing benefits originating from prior employment. For the rest of the income distribution groups, housing had been the benefit most closely linked with employment status and thus increased as income groups moved towards the top, particularly in 1988 before public housing reforms. Similarly, in both surveys, *food assistance* and *other in-kind benefits* originated mostly from employers and these benefits favoured those at the higher end of the income distribution.

After social benefit transfers, the distribution of the post-tax post-transfer household income was different in the two surveys, as shown in Figure 2. The 1988 post-tax post-transfer income distribution by pre-tax pre-transfer income deciles was largely upward-sloped, with most decile groups maintaining the same relative position (with only the bottom and 2nd decile changing positions, but with small differences in their mean post-tax post-transfer income). In 2002, the bottom decile received such high social benefits that their post-tax post-transfer household income jumped to the 6th decile, while there was no change in the relative position of other income groups. In both years, the top decile had strikingly higher post-tax post-transfer income than other deciles (1.8 times the average in 1988 and more than twice the average in 2002), indicating that the income gap between the rich and the poor had expanded during the period.

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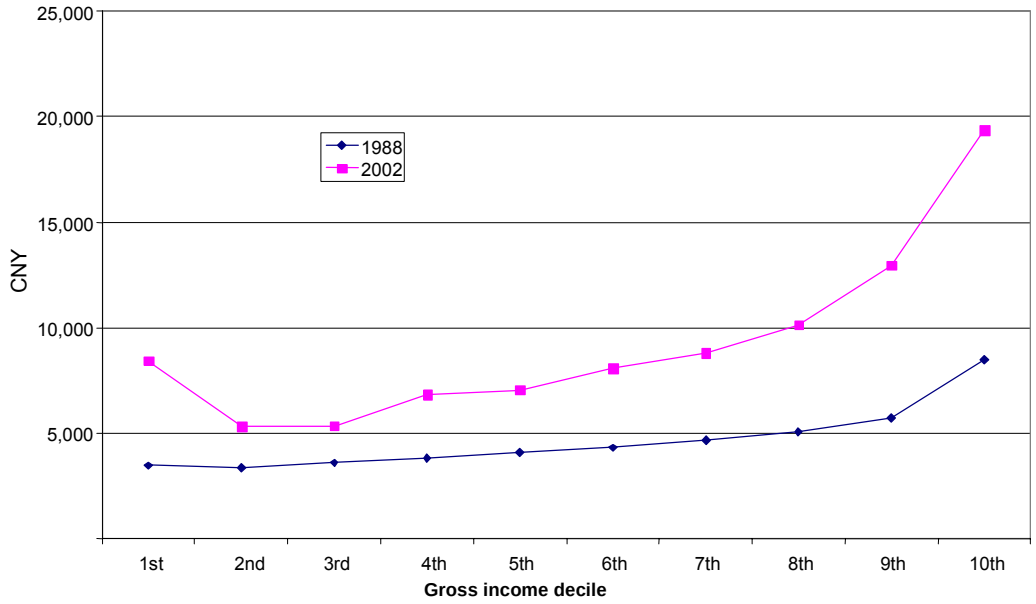
15 The national enrolment rate of school aged children (6-14 yrs) has increased steadily since 1978. It rose from 95.5 per cent in 1978 to 97.8 per cent in 1990, 98.5 per cent in 1995, and 99.1 per cent in 2000, but dropped slightly to 98.6 in 2002 (NBS 2004: 175).

Figure 2
Post-tax post-transfer income by pre-tax pre-transfer income decile in urban China



Source: Author's calculations using the CHIP data.

5.2 Social benefit levels by demographic characteristics

Tables 5 and 6 present the mean social benefit levels according to household head demographics and household characteristics in 1988 and 2002, respectively. Households headed by older members (>60 yrs) enjoyed more total social benefits in both years, as expected. This is due in particular to the cash transfers geared towards the elderly in the form of pensions, especially in 2002. This group also received more health and housing benefits than households with younger heads in 1988, while in 2002 households with middle-aged heads (40-59 yrs) enjoyed more health and housing benefits.

Households whose heads were unmarried received in both years more total social benefits than households with married heads and unmarried male-headed households received more total social benefits than female-headed ones. Unmarried households benefited mostly from cash transfers, but less on the part of education benefits. Households headed by married spouses enjoyed in 1988 less health benefits, but more housing benefits. Interestingly, unmarried female-headed households in 2002 received more housing and food assistance than other groups.

Compared to the Han people, ethnic minorities appeared to receive slightly more cash transfers and food assistance in 1988 and more cash transfers, health and education benefits in 2002. CCP members received more housing benefits in 1988 and more cash transfers in 2002 than non-CCP members. Primary school education or less was associated with more cash transfers in both years. Education was strongly positively related to housing benefits in 1988, but positively associated with health and education benefits in 2002.

Table 5
Mean social benefit levels by demographic groups in urban China: 1988

Demographics	Total social benefits	Social benefits by domain: Cash transfers	Health	Education	Housing	Food	Other in-kind	Post-tax post-transfer income
Household head demographics								
Age								
21-29	2,240	734	239	6	764	493	3	4,556
30-39	1,802	266	169	66	807	486	8	4,361
40-49	1,793	189	152	123	812	510	7	4,357
50-59	2,311	502	217	60	973	553	6	5,108
60+	3,502	1,643	304	26	1,042	486	1	5,765
Marital status								
Married	2,041	397	185	77	866	509	6	4,631
Unwed, female	2,420	768	225	59	845	517	5	4,921
Unwed, male	2,671	1,049	278	42	781	511	11	5,072
Ethnic minority								
No	2,079	433	190	75	869	507	6	4,661
Yes	2,081	484	200	86	719	582	10	4,619
CCP member								
No	1,996	451	193	70	772	504	6	4,519
Yes	2,207	408	186	84	1,003	519	6	4,878
Education								
Primary school	2,084	555	207	68	729	514	11	4,530
Junior highschool	1,950	398	184	77	770	514	6	4,527
Senior highschool	2,121	425	190	71	923	507	6	4,721
Partial college	2,080	381	188	80	927	499	6	4,688
4 year college+	2,421	419	188	93	1,209	510	3	5,199
Employment status/type								
Govt/SOE/collective	1,962	322	180	79	856	518	7	4,581
Private enterprise	2,107	769	214	46	744	333	2	5,586
Retired	3,716	1,922	331	31	973	457	2	5,483
Household characteristics								
No. of children<18 yrs								
0	2,888	946	281	20	1,059	576	7	5,811
1	1,925	332	180	69	827	510	6	4,569
2	1,668	167	128	137	773	456	7	3,850
3+	1,360	128	95	164	587	384	2	3,073
No. of elders >60 yrs								
0	1,939	287	176	83	866	519	7	4,593
1	2,376	770	219	53	843	487	4	4,793
2+	3,141	1,510	301	27	855	447	1	5,140
No. of other adults 18-59 yrs								
0	4,375	2,263	366	22	1,219	505	0	6,099
1	3,206	1,365	263	52	1,029	491	7	5,736
2	1,936	309	171	84	862	504	7	4,516
3	2,111	418	197	83	884	520	8	4,775
4	1,959	394	200	57	775	528	5	4,601
5+	1,859	412	206	37	695	505	4	4,376
Region								
Eastern	2,394	497	231	75	1,069	516	7	5,524
Central	1,831	408	169	71	702	478	3	4,099
Western	2,141	384	168	90	901	585	13	4,512

Source: Author's calculations using the CHIP data.

Table 6
Mean social benefit levels by demographic groups in urban China: 2002

Demographics	Total social benefits	Social benefits by domain: Cash transfers	Health	Education	Housing	Food	Other in-kind	Post-tax post-transfer income
Household head demographics								
Age								
21-29	1,472	938	139	40	152	168	35	8,982
30-39	1,293	345	167	308	189	53	13	8,426
40-49	1,668	452	201	404	301	44	11	9,025
50-59	2,962	1,989	203	68	308	44	14	9,787
60+	7,115	5,394	87	98	225	31	7	10,075
Marital status								
Married	2,706	1,544	176	247	254	44	12	9,220
Unwed, female	3,471	2,294	144	239	501	125	23	9,460
Unwed, male	3,753	2,848	158	142	236	58	12	9,474
Ethnic minority								
No	2,705	1,571	171	243	262	48	12	9,202
Yes	3,510	1,815	237	296	263	26	11	9,858
CCP member								
No	2,501	1,321	162	265	278	44	11	8,558
Yes	3,138	2,008	195	214	235	51	14	10,333
Education								
Primary school	3,196	2,416	88	169	175	18	8	6,761
Junior highschool	2,745	1,683	150	193	272	37	9	7,747
Senior highschool	2,614	1,475	179	287	285	54	13	9,101
Partial college	2,613	1,215	212	263	220	51	15	11,020
4 year college+	3,154	1,767	227	264	283	63	12	12,873
Employment status/type								
Govt/SOE/collective	1,647	619	213	295	275	50	13	9,492
Private enterprise	1,771	612	157	310	251	57	13	8,576
Retired	6,043	4,506	122	88	254	36	10	9,850
Unemployed	1,456	804	106	276	194	27	4	5,752
Household characteristics								
No. of children<18 yrs								
0	3,950	2,550	195	71	340	51	12	10,614
1	1,790	812	165	369	209	44	12	8,285
2+	1,308	523	69	606	70	33	7	5,913
No. of elders >60 yrs								
0	1,707	720	194	280	273	51	13	9,074
1	4,019	2,921	139	160	232	37	10	8,721
2+	8,036	5,707	88	110	218	32	7	10,770
No. of other adults 18-59 yrs								
0	11,783	8,534	67	43	321	30	6	13,537
1	6,238	4,480	124	201	343	91	19	10,472
2	1,891	893	179	342	237	48	12	8,911
3	2,412	1,262	199	149	308	42	12	9,342
4+	1,586	1,147	140	60	144	34	5	6,988
Region								
Eastern	3,053	1,721	187	293	298	79	20	10,501
Central	2,732	1,527	153	205	298	37	9	8,767
Western	2,205	1,478	219	281	90	11	6	8,204

Source: Author's calculations using the CHIP data.

With regard to employment status and type, more social benefits were targeted towards households headed by retirees than households whose heads were employed or unemployed (in 2002). Retiree-households also received more health and housing benefits in 1988 but not in 2002. Households whose heads were employed by government public institutions or state-owned and collective enterprises profited from more food assistance in 1988 and more health benefits in 2002 than other households. Families with unemployed heads in 2002 were more disadvantaged with regard to all types of in-kind benefits than other households.

With respect to families with children, a more greater of children was associated in both years with fewer social benefits, with the exception of education. In contrast, the presence of more elder members increased the total social benefits of a household. Excluding children and elderly, the number of other adults (aged 18-59 yrs) had no association with social benefits, except in the case of households with only one other adult—usually a single parent—to whom more social benefits would be targeted. This is consistent with earlier findings that unmarried households tend to be favoured with more social benefits.

5.3 The determinants of social benefits

Tables 7 and 8 present the OLS regression results on the determinants of social benefits in 1988 and 2002, respectively. The regression results on the effects of pre-tax pre-transfer market income and most demographics largely confirm earlier findings based on cross-tabulations. In 1988, even after controlling for demographics, the greatest total social benefit accrued to the top income decile (with a regression coefficient of 154), followed by the bottom decile (the omitted group whose regression coefficient is 0), while all other groups in the middle range of the pre-tax pre-transfer income distribution received less (with negative regression coefficients). Lower-income groups received more cash transfers, while housing benefits were skewed towards the richest (10th) income group. In 2002, the bottom decile profited from significantly higher social benefits (the omitted group with a regression coefficient of 0) than all other income groups (regression coefficients all negative and the absolute values more than 1,000 in seven of the remaining nine groups), this being the net effect of demographic characteristics, age and retirement status of household heads in particular. Pre-tax pre-transfer income distribution was negatively related to cash transfers, but positively related to education and food benefits.

In both 1988 and 2002, a household being headed by an elder member (60 yrs or above) or a retiree and the presence of more elderly family members were positively related to total social benefits, mainly cash transfers. However, effects of some demographic variables changed; detailed effects of the pattern of these variables emerge more clearly from the regression results. In 1988, households with unmarried heads—particularly male-headed households—were related to more total social benefits, in particular cash transfers, health and education. However, after controlling for the effects of the pre-tax pre-transfer market income, unmarried households in 2002 were negatively related to cash transfers (statistically significant) and total social benefits (not statistically significant).

Table 7
'OLS regression of demographics and pre-tax pre-transfer income decile on social benefits in urban China in 1988 (N=30,968)

	(1) Total social benefits	(2) Cash transfers	(3) Health	(4) Education	(5) Housing	(6) Food	(7) Other in-kind
Household head characteristics							
Age	17**	3**	0**	2**	8**	3**	-0**
	(19.84)	(10.44)	(4.37)	(35.35)	(12.31)	(10.44)	(3.57)
Marital status (married omitted)							
Unmarried female	85*	65**	17**	19**	-44	28*	-0
	(2.20)	(4.24)	(5.98)	(7.23)	(1.43)	(2.24)	(0.08)
Unmarried male	462**	388**	55**	22**	-28	19	5*
	(12.27)	(26.26)	(19.60)	(8.52)	(0.93)	(1.56)	(2.37)
Ethnic minority	-18	75**	19**	4+	-168**	51**	1
	(0.50)	(5.42)	(7.24)	(1.70)	(6.00)	(4.44)	(0.63)
CCP	204**	33**	-0	5**	172**	-6	1
	(13.65)	(5.60)	(0.27)	(4.48)	(14.47)	(1.18)	(0.63)
Education (primary school or less omitted)							
Junior highschool	129**	58**	-4**	11**	75**	-3	-8**
	(6.09)	(7.01)	(2.60)	(7.35)	(4.48)	(0.45)	(6.73)
Senior highschool	296**	90**	1	7**	220**	-13+	-9**
	(13.40)	(10.33)	(0.85)	(4.45)	(12.52)	(1.82)	(6.72)
Some college education	260**	72**	2	14**	202**	-22*	-8**
	(8.32)	(5.85)	(0.89)	(6.26)	(8.15)	(2.20)	(4.26)
4 year college or above	528**	105**	-3	20**	444**	-27**	-11**
	(18.35)	(9.34)	(1.18)	(10.04)	(19.38)	(2.94)	(6.54)
Employment status/type (employed at public institutions or state-owned or collective enterprises omitted)							
Private enterprises	-188**	242**	-8*	-23**	-178**	-212**	-8**
	(3.77)	(12.39)	(2.25)	(6.79)	(4.50)	(13.10)	(2.86)
Retired	966**	1,019**	103**	-37**	-2	-117**	-1
	(26.65)	(71.67)	(38.03)	(14.63)	(0.06)	(9.98)	(0.42)
Household characteristics							
No. of kids <18 yrs	-458**	-262**	-54**	56**	-132**	-66**	1
	(44.79)	(65.38)	(70.16)	(78.68)	(16.24)	(19.93)	(0.96)
No. of elders 60+ yrs	30*	219**	22**	-23**	-146**	-41**	-1
	(2.08)	(38.89)	(20.22)	(23.11)	(12.79)	(8.80)	(1.25)
No. of other adults 18-59 yrs	-249**	-96**	-5**	-6**	-123**	-20**	-0
	(32.85)	(32.15)	(9.35)	(10.93)	(20.31)	(7.94)	(0.91)
Region (eastern omitted)							
Central	-539**	-117**	-50**	-13**	-331**	-27**	-1
	(34.00)	(18.75)	(42.28)	(11.70)	(26.26)	(5.34)	(0.84)
Western	-173**	-84**	-44**	-2	-133**	82**	8**
	(8.38)	(10.35)	(28.53)	(1.23)	(8.12)	(12.27)	(6.62)
Pre-tax pre-transfer income deciles (1st decile omitted)							
2nd	-165**	-122**	6**	-7**	-69**	25*	1
	(5.26)	(9.86)	(2.59)	(3.20)	(2.77)	(2.48)	(0.58)
3rd	-290**	-172**	4+	-3	-137**	15	3
	(9.05)	(13.66)	(1.70)	(1.22)	(5.37)	(1.41)	(1.49)
4th	-267**	-206**	9**	-1	-129**	59**	2
	(8.29)	(16.34)	(3.62)	(0.62)	(5.02)	(5.68)	(0.81)
5th	-263**	-201**	15**	0	-135**	55**	2
	(8.10)	(15.77)	(6.17)	(0.22)	(5.22)	(5.23)	(1.17)
6th	-309**	-241**	12**	2	-136**	50**	4*
	(9.41)	(18.70)	(5.00)	(0.76)	(5.21)	(4.68)	(2.20)
7th	-302**	-233**	19**	-3	-162**	71**	5*
	(9.13)	(17.96)	(7.74)	(1.16)	(6.14)	(6.65)	(2.42)

Table 7 con't

Table 7 (con't)
OLS regression of demographics and pre-tax pre-transfer income decile on social benefits in urban China in 1988

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Total social benefits	Cash transfers	Health	Education	Housing	Food	Other in-kind
8th	-275**	-241**	25**	-3	-146**	82**	9**
	(8.26)	(18.47)	(9.91)	(1.44)	(5.51)	(7.59)	(4.60)
9th	-244**	-298**	29**	-6**	-52+	72**	11**
	(7.31)	(22.79)	(11.73)	(2.68)	(1.95)	(6.70)	(5.54)
10th	154**	-295**	42**	-6*	347**	47**	19**
	(4.53)	(22.15)	(16.39)	(2.43)	(12.87)	(4.24)	(9.49)
Constant	2,571**	846**	250**	-53**	1,026**	486**	15**
	(47.03)	(39.44)	(61.03)	(13.91)	(23.61)	(27.40)	(4.81)
R-squared	0.26	0.52	0.38	0.25	0.11	0.05	0.01

Notes: Absolute value of t statistics in parentheses; + p<0.10; * p< 0.05; ** p< 0.01.
Source: Author's calculations using the CHIP data.

Ethnic minorities were not significantly related to total social benefits in 1988. Minorities, in comparison to the Han people, were somewhat more likely to receive cash transfers, health benefits and food assistance, but much less likely to receive housing benefits. In 2002, minority status became a strong positive predictor of total social benefits as well as cash transfers, health, education and housing benefits. CCP membership in 1988 was positively related to total social benefits, mainly from cash transfers and housing benefits, but turned to be negatively associated in 2002 with total social benefits as well as health, education and housing benefits.

The educational level of the household head and total social benefits were found to be strongly positively related in both years. However, the source of benefits differed across the two years: in 1988, the positive relationship was mainly due to housing benefits followed by cash transfers while in 2002, it was mainly due to cash transfers followed by health benefits. This reflects the shrinking of employment-based housing benefits and the trend that the better educated were more likely to contribute to health insurance and thus received more health benefits after the health policy reforms.

The results with regard to employment status and type provided strong evidence that retired members in both years brought in more social benefits than employed individuals, mainly from pension (as part of cash transfers). One interesting change is that individuals employed in 1988 in private enterprises received less social benefits than those in public institutions or enterprises, due to fewer employer-provided housing and food assistance benefits, but received more total social benefits in 2002, mainly accruing from health benefits (which were based on self-contribution) and cash transfers.

Consistent with the findings from cross-tabulations, households with more children received fewer social benefits in total and in each domain, with the exception of education. This might be because that these households were partially excluded from the system or penalized for their violation of China's policy of 'one child'. The presence of more adults aged 18 to 59 years in a household was also negatively related to social benefits in total and in most benefit domains, except for education, perhaps because of the existence of more economically dependent members in these large households. Residents from both the central and western regions received less social benefits than those in the eastern region. However, in 1988 central-region residents received even less than recipients in the western region, but the situation was reversed in 2002.

Table 8
OLS regression of demographics and pre-tax pre-transfer income decile on social benefits in urban China in 2002 (N=17,654)

	(1) Total social benefits	(2) Cash transfers	(3) Health	(4) Education	(5) Housing	(6) Food	(7) Other in-kind
Household head characteristics							
Age	56**	40**	10	4**	3*	-2**	-0**
	(5.88)	(18.93)	(1.16)	(12.65)	(2.50)	(3.80)	(2.62)
Marital status (married omitted)							
Unmarried female	-492	-365**	-478	13	231**	95**	12**
	(1.39)	(4.59)	(1.43)	(1.03)	(5.45)	(5.79)	(3.33)
Unmarried male	-861	-280*	-559	-54*	6	25	2
	(1.39)	(2.02)	(0.96)	(2.53)	(0.08)	(0.87)	(0.31)
Ethnic minority	1,437**	525**	777**	31**	103**	-2	3
	(4.79)	(7.78)	(2.74)	(3.01)	(2.87)	(0.15)	(0.94)
CCP	-361*	30	-308*	-25**	-67**	7	2
	(2.57)	(0.97)	(2.33)	(5.22)	(3.98)	(1.10)	(1.33)
Education (primary school or less omitted)							
Junior highschool	1,309**	741**	469+	9	83**	8	-2
	(4.88)	(12.29)	(1.85)	(1.02)	(2.59)	(0.67)	(0.60)
Senior highschool	1,843**	1,133**	548*	47**	101**	14	-0
	(6.77)	(18.54)	(2.13)	(5.03)	(3.10)	(1.08)	(0.04)
Some college education	2,483**	1,404**	1,051**	-14	44	-1	-1
	(8.11)	(20.42)	(3.63)	(1.32)	(1.19)	(0.05)	(0.42)
4 year college or above	2,710**	1,770**	894**	-30*	84*	-1	-7+
	(7.79)	(22.65)	(2.72)	(2.49)	(2.02)	(0.08)	(1.86)
Employment status/type (employed at public institutions or state-owned or collective enterprises omitted)							
Employed at private enterprise	443**	184**	275+	-8	-17	9	0
	(2.61)	(4.83)	(1.72)	(1.44)	(0.82)	(1.09)	(0.18)
Retired	1,832**	1,817**	143	-112**	-42	20*	6**
	(8.46)	(37.37)	(0.70)	(14.96)	(1.61)	(2.04)	(2.70)
Unemployed	-421	-166*	-180	24*	-94*	-2	-3
	(1.31)	(2.31)	(0.60)	(2.21)	(2.43)	(0.16)	(0.89)
Household characteristics							
No. of children <18 yrs	-1,417**	-1,063**	-491**	286**	-134**	-12*	-2
	(11.33)	(37.87)	(4.16)	(66.08)	(8.95)	(2.11)	(1.15)
No. of elders 60+ yrs	1,054**	671**	536**	-79**	-79**	5	-0
	(7.61)	(21.57)	(4.10)	(16.50)	(4.76)	(0.72)	(0.13)
No. of other adults 18-59 yrs	-1,071**	-726**	-207*	-55**	-70**	-11*	-3**
	(11.99)	(36.16)	(2.45)	(17.74)	(6.56)	(2.56)	(2.89)
Region (eastern omitted)							
Central	-316*	-258**	69	-94**	8	-32**	-9**
	(2.22)	(8.11)	(0.51)	(19.12)	(0.49)	(4.89)	(5.78)
Western	-987**	-357**	-313+	-27**	-217**	-59**	-13**
	(5.13)	(8.26)	(1.72)	(4.04)	(9.41)	(6.69)	(6.20)
Pre-tax pre-transfer income decile (1st decile omitted)							
2nd	-1,223**	-782**	-498+	32**	13	9	4
	(4.09)	(11.65)	(1.76)	(3.07)	(0.38)	(0.62)	(1.23)
3rd	-1,419**	-909**	-559+	42**	-6	11	4
	(4.57)	(13.06)	(1.91)	(3.89)	(0.17)	(0.75)	(1.12)
4th	-692*	-954**	171	39**	25	18	8*
	(2.21)	(13.55)	(0.58)	(3.56)	(0.68)	(1.28)	(2.44)
5th	-1,338**	-1,131**	-308	54**	14	20	13**
	(4.24)	(15.97)	(1.03)	(4.94)	(0.38)	(1.36)	(3.92)

Table 8 con't

Table 8 (con't)
OLS regression of demographics and pre-tax pre-transfer income decile on social benefits in urban China in 2002 (N=17,654)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Total social benefits	Cash transfers	Health	Education	Housing	Food	Other in-kind
6th	-1,031**	-1,054**	-77	54**	6	29*	12**
	(3.20)	(14.59)	(0.25)	(4.86)	(0.15)	(1.96)	(3.41)
7th	-1,334**	-1,208**	-281	84**	29	31*	13**
	(4.13)	(16.65)	(0.92)	(7.49)	(0.74)	(2.05)	(3.78)
8th	-1,347**	-1,197**	-296	92**	-1	37*	17**
	(4.14)	(16.37)	(0.96)	(8.19)	(0.01)	(2.47)	(4.80)
9th	-590+	-1,419**	410	133**	212**	57**	16**
	(1.80)	(19.22)	(1.32)	(11.71)	(5.38)	(3.75)	(4.65)
10th	-1,362**	-1,641**	-121	177**	63	130**	31**
	(4.06)	(21.79)	(0.38)	(15.26)	(1.56)	(8.36)	(8.61)
Constant	2,181**	1,386**	261	37	345**	128**	25**
	(3.38)	(9.56)	(0.43)	(1.64)	(4.46)	(4.28)	(3.65)
R-squared	0.10	0.57	0.01	0.32	0.02	0.02	0.01

Note: Absolute value of t statistics in parentheses; + p<0.10; * p< 0.05; ** p< 0.01.
Source: Author's calculations using the CHIP data.

6 The impact of social benefits on income inequality

This section examines the impact of social benefits on income inequality using two approaches: a comparison of a set of inequality indices based on pre- and post-transfer incomes and a comparison of the income shares of pre-tax pre-transfer income deciles before and after social benefit transfers.

Table 9 presents the pre- and post-transfer income shares by income deciles. While the distribution of pre-tax pre-transfer incomes was quite inequitable in both years, inequality was apparent in 1988 to a lesser degree than in 2002. The bottom decile accounted for only 3 per cent of urban society's total market income in 1988 and this share decreased further in 2002 to 1 per cent while in contrast, the top decile enjoyed 23 per cent in 1988, increasing their share of the total urban market income to 27 per cent in 2002. Similarly, the market income shares of the lower deciles (2nd to 4th deciles) diminished while those of the higher groups (7th to 9th deciles) increased, respectively, from 1988 to 2002.

In both years, social benefit transfers reduced income inequality across pre-tax pre-transfer income deciles. As a result, post-transfer incomes were more fairly distributed than pre-tax pre-transfer incomes. The income shares at the lower end of the income distribution increased, while those at the higher end dropped in both years. For example, in 1988 he bottom decile increased its income share from the 3 per cent pre-tax pre-transfer level to a post-transfer share of 7 per cent (an increase of 4 percentage points) and in 2002 from 1 per cent to 9 per cent (an increase of 8 percentage points). Similarly, the income share of the top decile dropped 4 and 6 percentage points, respectively, in 1988 and 2002, suggesting that social benefits redistributed resources and reduced income inequality to a greater degree in 2002 than in 1988.

However, income inequality still persisted in both years even after transfers, with disproportionately smaller income shares accruing to the deciles at the lower end (less than 10 per cent per decile) and the higher end enjoying more than their population share (more than 10 per cent per decile). This development was mainly driven by the market economic reforms evolving during this period that favoured individuals who were market competitive and who had more economic resources, but left the disadvantaged behind, the effects of which could not be offset by social benefit transfers.

Table 10 presents the results of the impact of social benefits on income inequality levels in 1988 and 2002. Overall, the pre-tax pre-transfer income inequality based only on market income increased dramatically from 1988 to 2002. Although social benefit transfers in both years did help to reduce the gap somewhat, post-transfer income inequality levels in 2002 were still higher than in 1988, indicating that the increase in social benefit levels was not sufficient to close the gap caused by increasing market income inequality during the period.

Table 9
Pre- and post-transfer income shares by pre-tax pre-transfer income deciles in urban China: 1988 and 2002

	1988			2002		
Decile	Pre-transfer	Post-transfer	Δ (post - pre)	Pre-transfer	Post-transfer	Δ (post - pre)
1st	3%	7%	4%	1%	9%	8%
2nd	6%	7%	2%	3%	6%	2%
3rd	7%	8%	1%	5%	6%	1%
4th	8%	8%	1%	6%	7%	1%
5th	9%	9%	0%	8%	8%	0%
6th	9%	9%	0%	9%	9%	0%
7th	10%	10%	0%	11%	10%	-1%
8th	12%	11%	-1%	13%	11%	-2%
9th	14%	12%	-1%	16%	14%	-2%
10th	23%	18%	-4%	27%	21%	-6%
All	100%	100%	0%	100%	100%	0%

Source: Author's calculations using the CHIP data.

Table 10
The impact of social benefits on income inequality indices in urban China: 1988 and 2002

	Pre-transfer	Post-transfer	Value change (= post - pre)	% Change (= change/pre)
		1988		
p90/p10	3.10	2.52	-0.58	-0.19
Gini	0.27	0.22	-0.05	-0.18
A(*e*=0.5)	0.07	0.04	-0.03	-0.38
A(*e*=1)	0.13	0.08	-0.06	-0.42
A(*e*=2)	0.38	0.14	-0.24	-0.62
		2002		
p90/p10	7.37	4.11	-3.26	-0.44
Gini	0.38	0.33	-0.05	-0.14
A(*e*=0.5)	0.13	0.09	-0.04	-0.31
A(*e*=1)	0.28	0.17	-0.11	-0.39
A(*e*=2)	0.70	0.29	-0.40	-0.58

Source: Author's calculations using the CHIP data.

The pre-tax pre-transfer p90/p10 dispersion ratio in 1988 was 3.10 and jumped to 7.37 in 2002, indicating that based only on market incomes of the time, there was a substantial increase in the gap between the rich and the poor. Social benefit transfers to a great degree helped to reduce the income gap in both years—by 0.58 (a reduction of 19 percentage points) in 1988 and a big distance of 3.26 (a reduction of 44 percentage points) in 2002, suggesting that the social benefits had a greater redistributional effect in 2002 than in 1988. This is consistent with the results in Table 9. However, the post-transfer income dispersion ratio was still larger in 2002 (11) than in 1988 (2.52).

Results from the Gini coefficient and Atkinson indices present a slightly different story. It is obvious that social benefits reduced income inequality in both years: in 1988 the Gini coefficient decreased from 0.27 to 0.22 and in 2002 from 0.38 to 0.33; Atkinson indices decreased by 0.03, 0.06 and 0.24 in 1988 and by 0.04, 0.11 and 0.40 in 2002 with the value of *e* changing from 0.5 to 1 and 2, respectively. However, using these two measures, it appears that social benefits reduced income inequality to a greater degree in 1988 than in 2002: value of the Gini coefficient decreased by 18 per cent in 1988 and 14 per cent in 2002; with regard to the Atkinson indices, as one attaches more and more weight to income transfers at the lower end of the income distribution (i.e., the value of *e* changing from 0.5 to 1 to 2), the effect of the social benefit transfer on the reduction of income inequality increased in both years and again the role of social benefit in alleviating income inequality was stronger in 1988 (i.e., larger percentage changes) than in 2002 using the percentage change measures.

7 Conclusion and discussion

This article provides empirical evidence on the determinants of social benefits and their impact on income inequality in urban China. The results show that even after controlling for various demographic characteristics, total urban social benefits strongly targeted the bottom income deciles in both years. The top income decile in 1988 also gained substantially from total social benefits, mainly from housing benefits. Cash transfers were negatively associated with pre-tax pre-transfer income distribution in both years, while important in-kind benefits—namely health and food in 1988 and education in 2002—were positively related to pre-tax pre-transfer income levels.

Old age, either as retirement of household head or more elderly household members, was strongly associated with higher levels of total social benefits, mainly reflecting their pension income. The educational level of a household head was positively related to total social benefits to a much greater degree in 2002 than in 1988. The economic and welfare reforms during this time period directly reduced the social benefits of those employed in public institutions or state-owned or collective enterprises. Larger households, including those with more children and more adults aged 18 to 59 years, were disadvantaged in both years with regard to social benefits. Residents in the central and western regions almost consistently received fewer social benefits of all types than those in the eastern region during both years.

Results also show that social benefits played a significant role in reducing income inequality in urban China both during 1988 and 2002. Although social benefits

reduced somewhat the income inequality gap in both years, there was no consistent pattern regarding which year's impact was larger on reducing inequality. But social benefit transfers were insufficient to close the rising income gap driven by growing market income inequality during the period. As a result, the level of the post-transfer post-tax income inequality was still greater in 2002 than in 1988. In addition, social benefits, particularly cash transfers, became more targeted towards the bottom sectors of the income distribution in 2002 than in 1988. As a result, the post-tax post-transfer income of the bottom income deciles was raised considerably and those who were left behind by both market income and social benefits were the 2nd and 3rd income deciles, or the working poor.

The findings of this study imply important policy lessons. First, even though absolute levels of social benefits have increased since the reforms, their contribution to alleviating income inequality declined compared to the increase in market income. As social benefits in China are being cut back while economic reforms are moving forward, serious attention needs to be paid to the growing income inequality. Perception of the people regarding their disadvantaged economic condition as well as relative deprival will increase when they contemplate the larger income gap. This will result in deteriorating mental and material wellbeing at the individual level and social instability at the society level. The government needs to focus on such potential problems and take efforts to reduce inequality.

Second, the working poor, i.e., the near-bottom income groups, have not only fared poorly in market competition but have also been left behind with respect to social benefits. It is important to recognize that this group needs the greatest intervention through social policies. Work opportunities and training programmes should, on the one hand, be provided to improve their market capabilities and on the other, more social benefits including cash assistance and in-kind benefits such as health, education and housing need to be redistributed towards this group.

Third, regional differences in market income and social benefits persist. Residents in central and western regions are receiving less benefit from market economy than those in the eastern region because of lack of natural resources, lower government input and less cumulated human capital. But social benefits which redistribute economic resources do not focus these laggard regions. The growing regional gap could have long-term adverse effects for the development of the whole society. Market economy and social benefits, therefore, need to be strengthened in the central and western regions.

This study has several limitations that need to be addressed in future research. First, the growing numbers of rural migrants are missing from this analysis because of data unavailability. The income inequality level would presumably be higher had the rural migrants been included. Given that social benefits on the part of the rural migrants are in most cases trivial, the redistributional role of social benefits could, in fact, be weaker than what is indicated by in this article. Further, since migrant population is much larger in 2002 than in 1988, the retrenchment of social benefits during the period could be even more predominant in comparison to the above results.

A second limitation concerns the fact that the inequality estimates in this article are based on income rather than expenditure data. Many argue that expenditure data are better suited for understanding the economic wellbeing of households. In future work,

it would be helpful to use household expenditure data for a better understanding of inequality patterns and the role of social benefits in the consumption of family resources.

Third, this study simply measured income on a per capita basis but ignored the objectives of certain benefits towards particular population subgroups, as well as income sharing patterns within the household. For example, health benefits are often specific to individuals with health problems; education benefits can only be enjoyed by enrolled children; cash transfers, especially pension income, may be allocated differently among children, elders and other adults. Future research should take these factors into account by using suitable measuring or imputation methods and equivalent scales.

Appendix

Appendix Table 1
The China Household Income Project (CHIP) sample designs

		1988	2002
		Urban	
Households		9,009	6,835
Individuals		31,827	20,632
Provinces:	Total	10	12
	Common to both waves	10	10
Cities:	Total	60	70
	Common to both waves	60	60
		Rural	
Households		10,258	9,200
Individuals		51,352	37,968
Provinces:	Total	28	21
	Common to all three waves	19	19

Source: Riskin, Zhao and Li (2001: 5).

Appendix Table 2
Administrative data on provincial per capita public health expenditures in 1988 (in 2002 CNY)

	Employees by enterprise type			
Province	State	Collective	Other	Retirees
Beijing	470	281	125	993
Shanxi	181	92	259	377
Liaoning	327	169	344	684
Jiangsu	295	180	312	578
Anhui	205	117	175	380
Henan	223	107	807	568
Hubei	271	125	313	553
Guangdong	420	209	212	751
Yunnan	289	150	332	590
Gansu	250	105	671	441

Source: Author's calculation based on NSB and Ministry of Labour (1989) and *China Labor Yearbook* (1991).

Appendix Table 3
Administrative data on provincial per capita public education expenditures in 1988 and 2002 (in 2002 CNY)

	1988		2002		
Province	Middle school*	Elementary school	Senior middle school	Junior middle school	Elementary school
Beijing	1,466	620	4,996	3,835	2,904
Shanxi	529	239	1,335	1,060	744
Liaoning	675	320	1,603	1,635	1,202
Jiangsu	496	252	1,942	2,234	1,740
Anhui	373	151	1,190	1,007	935
Henan	398	123	912	1,178	915
Hubei	471	116	1,109	1,096	868
Guangdong	632	302	3,055	3,523	2,098
Yunnan	625	275	2,131	2,293	1,600
Gansu	471	259	1,560	1,448	1,223

Note: * Including both highschool and junior middle school.

Source: Author's calculation based on Ministry of Education (1989), CEESY (2003) and NBS (2003).

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