# Asia's Dependency Transition:
# Intergenerational Equity, Poverty Alleviation and Public Policy
# China's Case

## NTA country report

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# Contents

## Abstract

This report is the NTA country report of China for the year 2006.

We describe briefly the country's background, including the economic and population growth, demography, social security system, education system, familiar support system and the poverty alleviation policies.

Then we summarize our work progress on the NTA Account. We describe data sources, methodology and estimation result, especially the result from CHIP95 data, which became available for us recently. Methodology problems such as the adaptability of regression method is estimating the age-health and age-other consumption profile is discussed. We also analyze the unique shape of China's profile, such as the gap between the urban and rural and the relatively low consumption level for the elderly. Future plan is also briefed in the report.

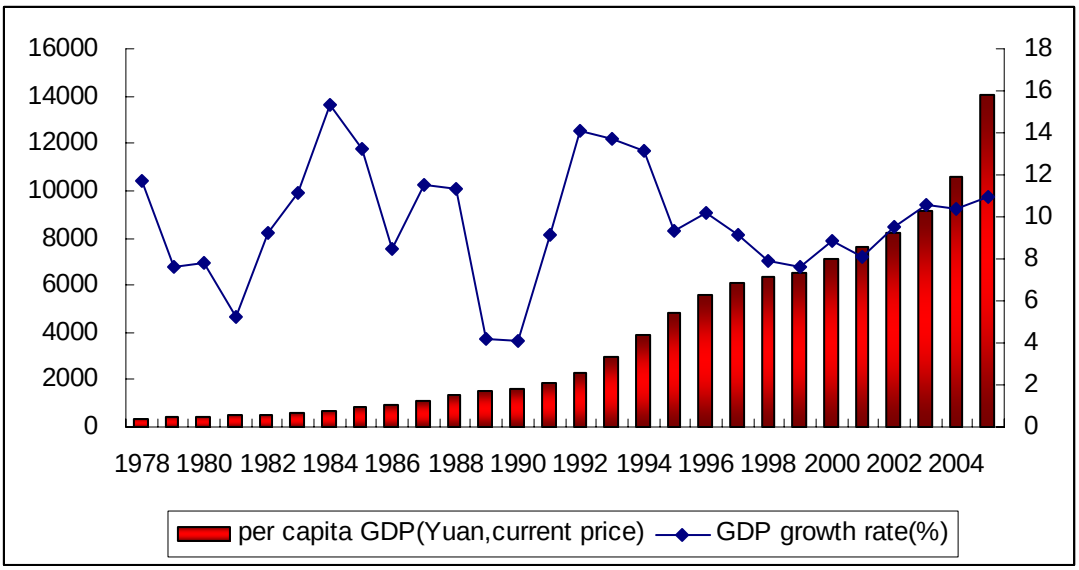
# I Country Background

## 1.1 Economic and population growth

China saw rapid economic growth at the average rate of 9.5% since 1978 when the market-orating reform was conducted, and the nominal GDP at 2005 has reached XXX. China has completed its transition from a socialist centrally planned economy to a market based economy. In moving from an economy under socialism that was closed to the outside world and plagued by low efficiency and stagnation, China has become, in the last two decades¸ one of the most dynamic and fastest-growing economies in the world. In less than twenty years' time, between 1982 and 2000, real GDP per capita for the Chinese population, adjusted for purchasing power parity (PPP), rose more than four-fold – a record unmatched elsewhere in the world.

The per capita income has also been increased significantly, however, with big gap between the rural area and urban area. In 2005 the per capita income in the urban area is 10493 Yuan while the per capita income in the rural area is 3249.5 Yuan (The exchange rate between $ and RMB Yuan is 7.8 Yuan RMB per $).

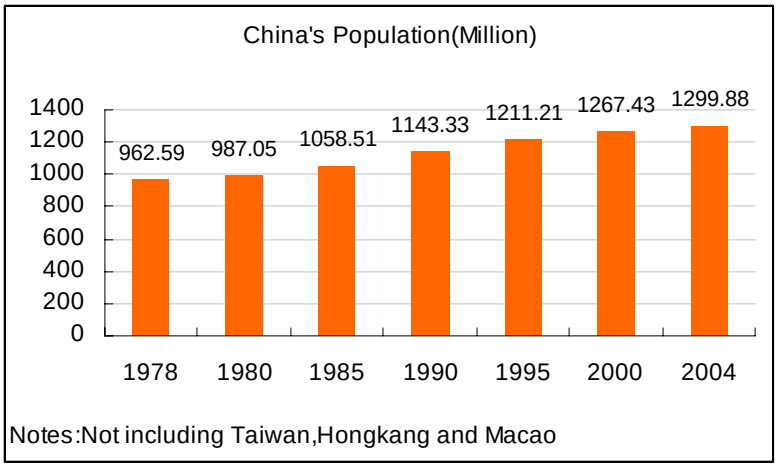
**Figure 1. Per capita GDP and Growth Rate, China, (1978-2005)**



Source: China Statistical Yearbook

Population policy: The population of China in 2004 is 1299.88 million, with the growth rate 5.87, birth rate 12.29, mortality rate 6.42; The PRC was founded in 1949 with the population of 450 million, after almost a century of the war and 混乱. During 1949 and 1970s, the Chinese government took the policy of encouraging birth, which leads to rapid population growth. In 1978, the population is 962.6 billion, more than double that of 1949.

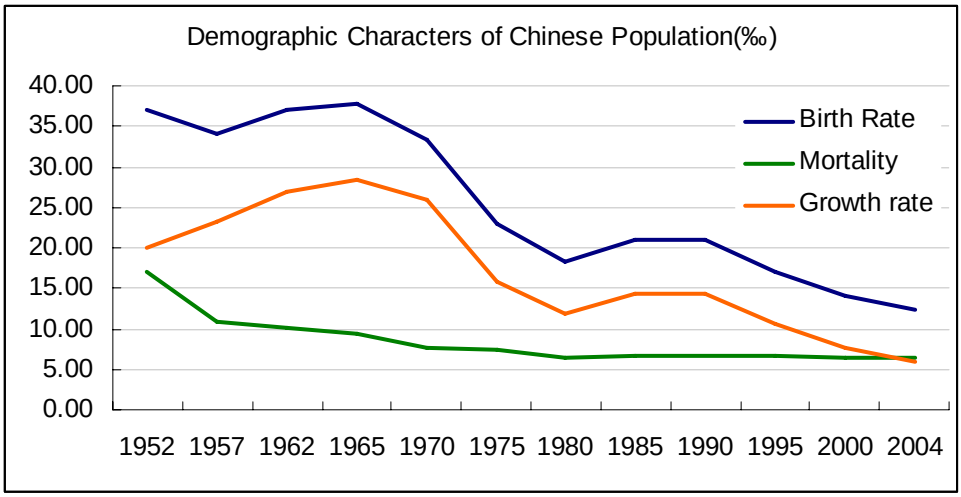
**Figure 2. China's Population (1978-2004)**




Source: China Statistical Yearbook

Ever since 1970s, china had conducted the birth control policy ("one child policy") and gain great success. As a result, the demographic characteristic has been greatly changed during recent 20 years. Form 1952 to 2004, the birth rate has been declined from 37‰ to 12.29, which took place mainly after 1970s, when the Chinese government commence the policy of birth control. The Mortality rate has declined from 17 in 1952 to 6.42 in 2004. The progress is largely attributed to the improvement of public health conditions and the elimination of choric disease, which is the major threaten to the people some forty years ago. After all, the Chinese population has shifted from high birth rate and high mortality to low birth rate and low mortality. For more detailed discussion on the transition of China's demography, please see Andrew Mason (2002).

**Figure 3: Demography of the Chinese Population** (1952-2004)




Source: China Statistical Yearbook

## 1.2 Private transfer system to the elderly

### 1.2.1 Co-residence

The implications of aging are more serious for China where there is still no developed social security system especially in rural areas. Sharp incongruence exists between the advance of the aging process and the social and institutional context within which it takes place.

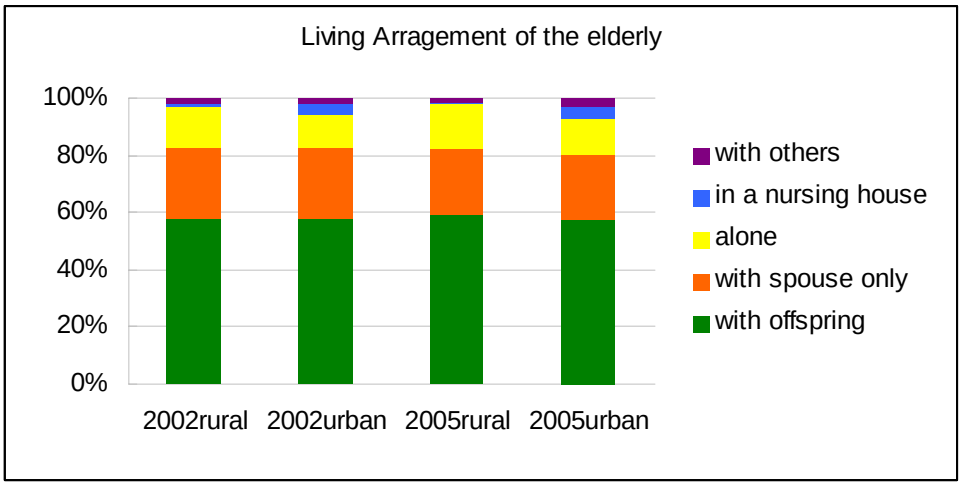
Table 1 shows the distribution of co-residence arrangement for the China's elderly population aged 65 above.

**Table1 Living Arrangement of the elderly (%)**

| | 2002 | 2005 | 2002rural | 2002urban | 2005rural | 2005urban |
|---|---|---|---|---|---|---|
| with offspring | 64.46 | 64.06 | 57.99 | 58.03 | 59.14 | 57.04 |
| with spouse only | 15.69 | 17.9 | 24.36 | 24.42 | 23.18 | 23.2 |
| alone | 13.45 | 13.41 | 14.64 | 11.71 | 15.39 | 12.78 |
| in a nursing house | 4.61 | 2.7 | 1.22 | 3.82 | 1.22 | 4.5 |
| with others | 1.79 | 1.94 | 1.79 | 2.02 | 1.07 | 2.48 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Sample Size | 100 | 100 | 100 | 100 | 100 | 100 |

Source: calculated from NAPS data.




The majority of elderly Chinese lives in the same household as their offspring (59.14% in the rural and 57.04% in the urban), while only 1.22% and 4.5% elderly lived in the nursing home. It has been an article of faith in China that the family should pay respect to and care for its elderly members. Our estimation also reveals that family support plays the key role in supporting the elderly.

However, recently some new evidence suggests that family and household structures have been changing greatly in China (Zeng, 2000). Lower mortality is improving the survival of family members and thus contributing to the chance of co-residence, but lower fertility is reducing the number of potential relatives for the elderly person to live with.

The inequality between rural areas and urban areas in China has been discussed extensively in literature by economists, demographers and policy-makers. In studying the well-being and living arrangements of the elderly in China, it is also of importance and interest to consider the elderly in rural and urban China separately. People often take it for granted that the rural elderly are more likely to live with offspring while the urban elderly are more likely to live independently. But the data from the survey are inconsistent with this surmise. The percentage of living with offspring does not very significantly between rural and urban elderly; however, the changes in the percentage of living with offspring are of opposite direction in rural and urban areas. The percentage of living with offspring increased from 2002 to 2005 (from 57.99% to 59.14%) in rural areas whereas this percentage decreased in urban areas (from 58.03% to 57.04%).

1.2.2 Familial support for the elderly

Judging from the living arrangement, we may infer that the intra-household transfer should be the main channel of supporting the elderly. Currently, we have no nation-wide census on the family support to the elderly. However, the National Aged Population Survey (NAPS) by Peking University provides enough data for us to evaluate the situation of family support to the elderly. The survey data contains information concerning the living arrangement, economic status and health of the elderly. The sample size is 15638. We will report some statistical result and discuss.

Main source of financial support

The surveyed elderly are asked to report their main source of financial support. Table 2 summarizes the result.

**Table 2 Main source of financial support of the elderly, 2002**

| | urban | rural | Total |
|---|---|---|---|
| Pension | 37.8% | 5.5% | 19.9% |
| spouse | 2.4% | 1.9% | 2.1% |
| child(ren) | 43.8% | 69.0% | 57.8% |
| grandchild(ren) | 3.9% | 6.0% | 5.0% |
| other relative(s) | 0.4% | 0.7% | 0.6% |
| local government or community | 5.8% | 4.2% | 4.9% |
| work by self | 3.9% | 11.3% | 8.0% |
| others | 2.1% | 1.3% | 1.7% |

Clearly, we can see that no matter in urban or rural area, family support from children is the main sources of the financial support of the elderly. Note that 37.8% of the elderly in the rural area depends on pension as the main financial source while only 5.5% of rural elderly depends mainly on pension, which reveals that the coverage of pensions is low and has big gap between the urban and the rural.

Another important phenomenon is that 11.3% of the elderly in the rural area aged 65 and above still make living themselves. This is consistent with our estimation of the age-labor income profile of the rural area, which curve has a relatively smooth “peak”.

Moreover, 26.3% of rural elderly and 18.2% of urban elderly do not get adequate financial support to cover their living cost, a high proportion. Interesting, the

distribution of the type of financial support within this group is similar to that of the whole sample.

The scale of family support

The NAPS data reports the cash and in-kind transfers form the children and grandchildren as well as the transfer from the elderly to the children and grandchildren.

We can see that in the urban area, annual transfers from the children and grandchildren is 2383.7 Yuan, accounting for 33.2% of per capita consumption level this year. While in the rural area, the children and grandchildren contribute 1613.3 Yuan to the elderly, accounting for 73.8% of the per capita consumption level. Considering the consumption equivalence scale of the elderly, we may infer that in the rural area, the transfer from the children is enough for the elderly to meet basic living needs.

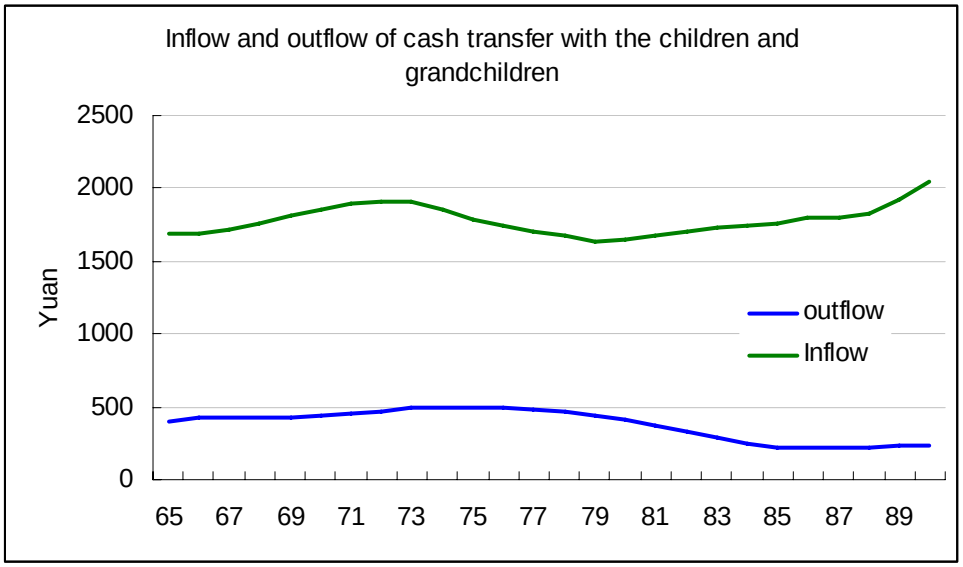
We also investigate the transfers from the elderly to the children and grandchildren, which is 544 Yuan in the urban and 184.4 Yuan in the rural, much less than the inflows.

**Table3 Annual transfer from the children and grandchildren, 2002**

| | Transfers to the elderly | | Transfers from the elderly | |
|---|---|---|---|---|
| | urban | rural | urban | rural |
| The son | 1200.8 | 904.2 | 208.7 | 56.3 |
| The daughter | 932.9 | 507.0 | 130.1 | 69.4 |
| The grandchildren | 250.0 | 202.1 | 205.2 | 58.7 |
| Total (1) | 2383.7 | 1613.3 | 544 | 184.4 |
| Consumption level(2) | 7182 | 2185 | | |
| (1)/(2) | 33.2% | 73.8% | | |

Another question is, at what ages do the elderly get more transfers from the children? We draw the age profiles of the inflow and outflow from/to the children (Figure 4). The curve shows that there are no significant differences between different age groups in getting transfer from the children. Concerning the outflow, the curve is downward after 80 years old, which is easy to explain.

**Figure 4 Inflow and outflow of transfer with the children and grandchildren**




1.2.3 Bequests and Parental investments in children

The data concerning bequests and parental investment in children is limited. We are in the progress of data collection.

## 1.3 Public transfer systems

1.3.1 Pensions (Old-age Insurance)

Description of the Basic Old-age Insurance

China is now an aging society. As the aging of the population quickens, the number of elderly people is becoming very large. This trend will reach its peak in the 2030s. Just like other social security systems, China's old-age insurance consists of multiple levels and has big gap across sectors and areas.

In the urban area, the "basic old-age insurance system for the enterprises employees" run by the government is the dominating. Enterprise employees who have reached retirement age and who have paid their share of the premiums for 15 years or more shall be entitled to collect a basic old-age pension every month after retirement. The pension consists of two parts: base pension and pension from personal account. The monthly sum of the base pension is tantamount to about 20 percent of an employee's average monthly wage in that area in the previous year. The monthly pension sum from

the personal account is 1/120 of the total accumulated sum in the personal account (11 percent of an employee's wage being deposited every month in the pension section). In 2003, the monthly basic pension for enterprise retirees covered by the basic old-age insurance scheme was 621 *Yuan* on average.

In 2003, the number of people participating in the basic old-age insurance scheme across China reached 155.06 million, 116.46 million of whom were employees.

In China the retirement and pension system for the government agencies and public institutions was originally funded directly by government finance. Ever since 1990s, some localities in China began to probe the procedures of reforming the retirement system in such institutions to raise the retirement pension funds through the social pool program. By the end of 2003, some 11.99 million employees and 2.58 million retirees had participated in such pilot projects.

Raising Funds

As the aging of the population quickens, the Chinese Government is raising such funds through multiple channels.

(1) Premium payment by both enterprises and employees. Generally the premiums paid by enterprises will not exceed 20 percent of the total wage bill of the enterprise, with the specific proportion determined by local government. Individual employees pay 8 percent of their wages as premiums, whereas self-employed individuals pay about 18 percent of the average wage in their locality. In 2003, the basic old-age insurance premium paid by enterprises nationwide totaled 259.5 billion Yuan.

(2) Government subsidy. In 2003, state budgets at all levels contributed 54.4 billion Yuan toward basic old-age insurance funds, accounting for 17.33% of the premium paid by the enterprises.

(3) National social security fund. In 2000, the Chinese Government decided to create a national social security fund. Its sources include: funds acquired from reducing state shareholding, stock ownership assets, funds from the central budget, funds raised by other means approved by the State Council, and investment returns. By the end of 2003, it had accumulated over 130 billion Yuan.

Coverage

The coverage of pension is still limited. Expect for the employees in enterprises and government agencies, the remaining population is rarely covered by old age insurance,

especially in the rural area, where individual saving and intra-house transfers play the key role in supporting the aging.

Old-age Insurance in the Rural

Just as we have mentioned above, the old-age security in rural areas is centered mostly on families. In the 1990s, China began to try out an old-age insurance system in some of the rural areas in accordance with the actual level of local socio-economic development. In light of the principle that "The premiums are paid mainly by individuals themselves, supplemented by collectively pooled subsidies and supported by government policies," an old-age insurance system with the accumulation of funds taking the form of personal accounts was established. By the end of 2003, some 54.28 million people had underwritten the old-age insurance program, which had accumulated a fund running to 25.9 billion Yuan, with 1.98 million farmers drawing old-age pension. In 2004, the Chinese Government began to experiment with a system that supports and rewards households that practice family planning by having only one child or two girls in some of the rural areas. Each person of such couple may receive a minimum of 600 Yuan a year from the age of 60 till the end of his or her life. This reward will be provided jointly by the central and local governments.

### 1.3.2 Health care

Delivery System

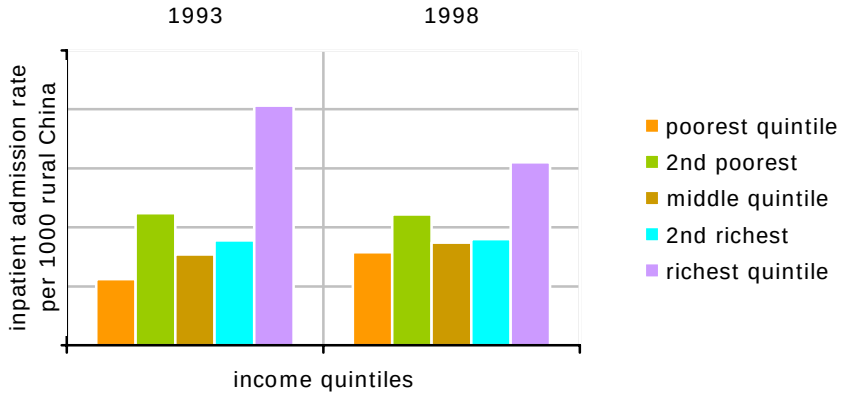
Public hospitals dominate the supply of healthcare service in China. Public hospitals are owned by states and local government, and account for over 90% of healthcare resources in China. 93.31% of hospital beds and 94.23% of health professionals are owned by states-owned hospitals. All of public hospitals are classified as non-profit institutions rather than for-profit ones.

In 2003, the number of beds per thousand populations is 2.35, increased by 14.4% during 1980s and by 3.9% during 1990s. There are 1.868 million doctors in total and 1.48 doctors per 1000 populations. The number of doctors per thousand populations increased most rapidly during 1980s. In the first half of 1980s, the number increased by 13.7% while in the second half of 1980s, the number increased by 15.8%., During 1990s, the number of doctors per thousand populations kept comparatively stable. Meanwhile, the scale of private hospitals is growing gradually.

Financing

Ever since 1990s, the Chinese government decreased its subsidy to the public hospitals, and took policies explicitly or implicitly to allow the public hospitals make profit by themselves. Government subsidy accounted for 30% of expenditures of the public hospitals in 1980s, but just 10% at present. As the result, over-supply of service became common, and the healthcare expenditure grew rapidly. The per-outpatient-visit fee grew from 10.8 Yuan in 1990 to 126.9 Yuan in 2005, while the CPI just doubled during the same time. High healthcare burden is considered one of the most serious social and economic problems of China. By a survey conducted at 2003 by the Minister of Health, 48.9% of patients who should see the doctor choose not to see the doctor, while over 70% of them are due to high price. Due to high prices, the poor populations utilize less healthcare service. (Figure 5)

**Figure 5 Healthcare: The poorer get the less service**




Source: 3rd National Healthcare Service Survey, MOH, 2003

Healthcare Insurance

The insurance coverage is limited. At 2003, 44.8% of urban citizens and 79% of rural population are kept out of healthcare insurance. Of all the healthcare expenditure, individual out-of-pocket expenditure account for as much as 60%.

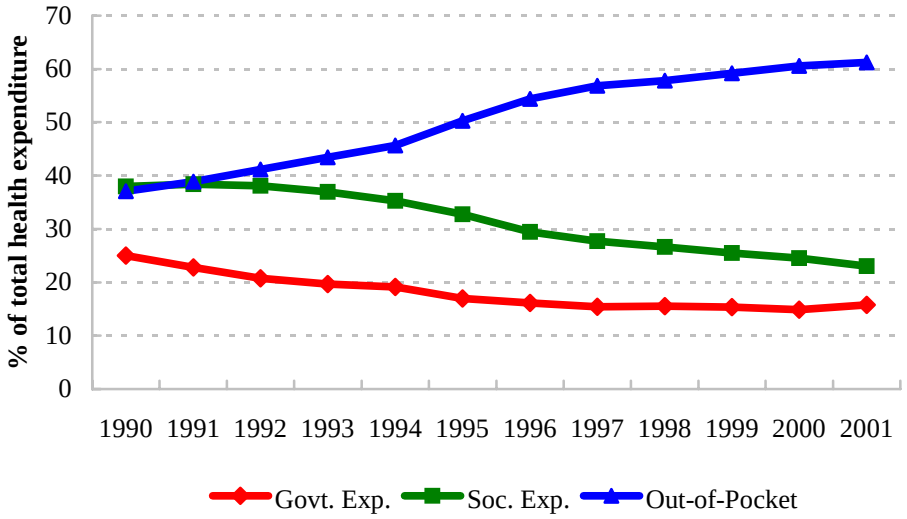
Table 4 Healthcare Insurance Coverage

| | Total | | Urban | | Rural | |
|---|---|---|---|---|---|---|
| | 2003 | 1998 | 2003 | 1998 | 2003 | 1998 |
| Basic insurance | 8.9 | - | 30.4 | - | 1.5 | - |

| | | | | | | |
|---|---|---|---|---|---|---|
| Public insurance | 1.2 | 4.9 | 4 | 16 | 0.2 | 1.2 |
| Labor insurance | 1.3 | 6.2 | 4.6 | 22.9 | 0.1 | 0.5 |
| Cooperative Insurance | 8.8 | 5.6 | 6.6 | 2.7 | 9.5 | 6.6 |
| Other social insurance | 1.4 | 5 | 2.2 | 10.9 | 1.2 | 3 |
| Private Insurance | 7.6 | 1.9 | 5.6 | 3.3 | 8.3 | 1.4 |
| Out-of-pocket | 70.3 | 76.4 | 44.8 | 44.1 | 79 | 87.3 |

Source: 3rd National Healthcare Service Survey, MOH, 2003

**Figure 6 The component of Total Healthcare Expenditure**




Source: China Health Yearbook

Basic Medical Insurance System for the Urban Employees

In 1998, the Chinese Government promoted a national reform of the basic medical insurance system for urban employees. By the end of 2003, some 109.02 million people around China had participated in the basic medical insurance program, including 79.75 million employees and 29.27 million retirees.

The Basic Medical Insurance System for urban employees combines social pool and personal accounts. It is managed by local government.

The basic medical insurance program covers all employers and employees in urban areas, including the retired. The funds come mainly from premiums paid by both the employers (6% of the total wage bill) and employees (2% of his or her wage). Retirees

are exempted from paying the premiums. The individuals' premiums and 30 percent of the premiums paid by the employers go to the personal accounts, and the remaining 70 percent of the premiums paid by the employers goes to the social pool program funds.

Medical expenses are shared by the medical insurance fund and the individual: Outpatient treatment fees are mainly paid from the personal account, while inpatient expenses are paid mainly by the social pool fund. The minimum payment is, in principle, about 10 percent of the average annual wage of local employees, and the maximum payment is about four times the average annual wage of local employees.

New Cooperative Medical Insurance for the Rural Residence

Before 1978, the Communes in rural China provided healthcare through a three-tier system that was managed and financed locally. The “cooperative medical system” (CMS) that organized the barefoot doctors and provided other medical services to the rural population was part of the commune system and was financed by the communes' welfare funds. Thus the CMS served the dual role of a supplier and a collector of insurance funds.

After economic reforms in agriculture the above healthcare system collapsed as the system of Communes collapsed.

At 2003, the Chinese government put forward the New Cooperative Medical Insurance in the rural area. The insurance is voluntary. The premium is 50 Yuan each year, of which 40 is supported by central and local government while the remaining 10 is from the individual. The insurance covers mainly the inpatient medical expenditure and part of outpatient expenditure. As the funding scale is low, the insurance benefit is limited.

The main characters of the New CMS include: (1) Strengthening government financial support for RCMS; (2) Help the poor to receive medial aids through Civil Affairs and anti-poverty sector; (3) Increasing risk pooling at county level; (4) Increasing security level for catastrophic illnesses

As of October, 2004, 333 countries from 31 provinces & municipals carried out pilot study of NCMS, 80.4 out of 106.9 million agriculture population have been covered (75.2%), 233 counties in 22 provinces in midland and west China have been carried out NCMS (coverage rate 75.16%).

However, some problems exist. Firstly, the CMS is voluntarily rather than

mandatory, so that adverse selection may be a problem. Secondly, the administration cost in collecting premium is high, as the 10 Yuan of premium by the individual should be collected household by household. Thirdly, as the premium and government subsidy level is low, the reimbursement rate is low. The average co-payment by individual is still as high as 70%-80%.

The CMS is supported by a delivery system of high cost. We propose that the Chinese government should take the major responsibility to ensure the accessibility to affordable healthcare service by way of improving government subsidies to the public hospitals and changing their attitude to make money.

### 1.3.3 Education

The Chinese education system can be basically divided into two parts, compulsory education and voluntary education. The compulsory education includes elementary school and junior high school. The Law of Compulsory Education ensures that all child of school age should go to school. Compulsory education is mainly supplied by the public schools. The enrollment rate of elementary school and junior high school is 99.15% and 95% respectively. Government subsidies cover the cost of public schools, and the responsibility is taken mainly by the local government.

The major responsibility to organize the implementation of compulsory education lies with county government. The township governments are responsible for the implementation of compulsory education, including safeguarding the right to compulsory education of school-age children and adolescents" (State Council Guidelines for the Reform and Development of Education in China, 1994)

Besides compulsory education, high education is in the progress of rapid development.

Figure 7 shows the enrollment rate for variety levels of schools; Figure 8 shows the component of education expenditures. Compared with the component of healthcare expenditures, we can see clearly that the government expenditure accounts for the majority of education expenditure.

**Figure 7 Enrollment rate of variety levels of schools**

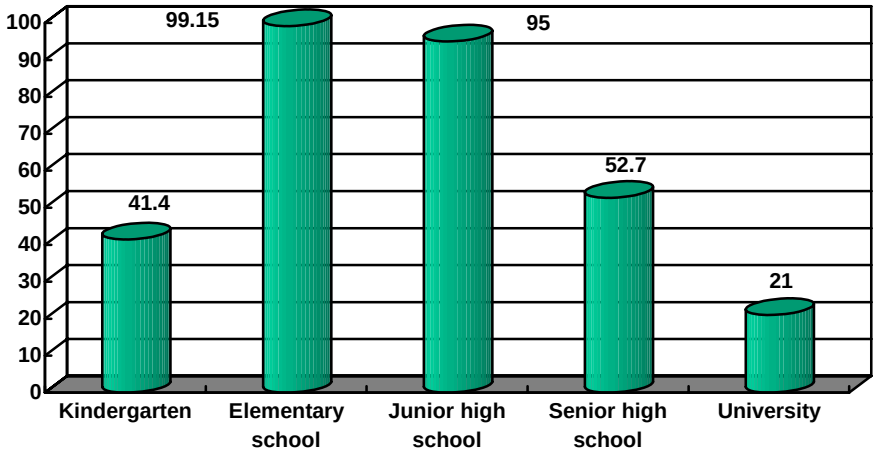
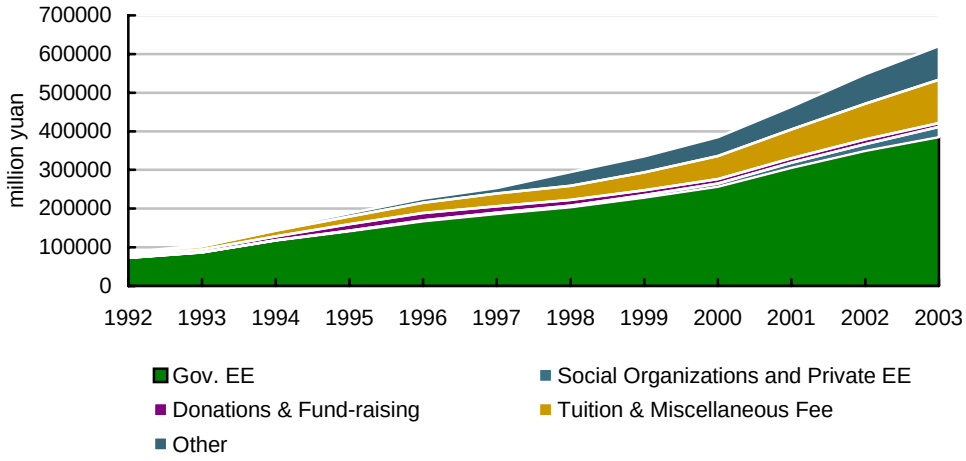



**Figure 8 Component of education expenditure**




Challenges to China's Education include

(1) Growing regional gap and gap between the rural and urban.

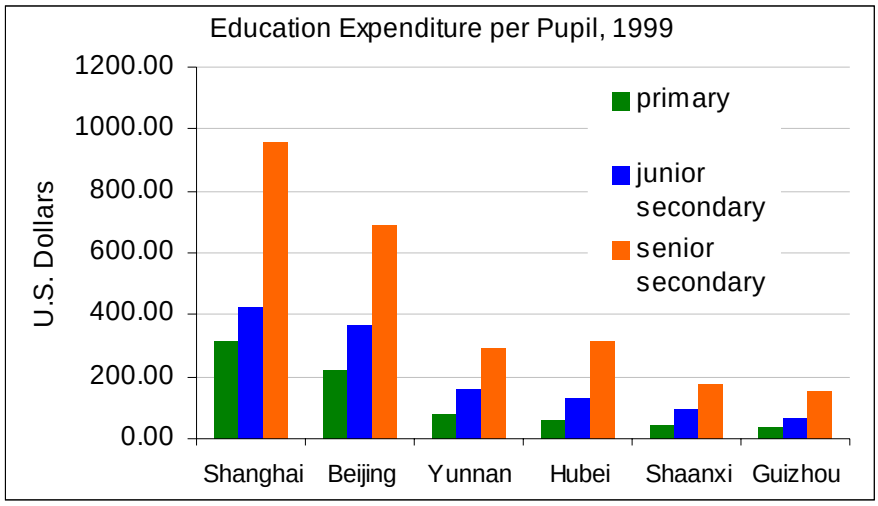
The per student expenditure for rural areas is much lower than average. There are 48,492,000 sq. feet dangerous school buildings in rural primary schools. Unaffordable school fees, low education quality, school inaccessibility are also serious problems in some area. **70%** of urban children enter high school, but less than **10%** of rural children. Among high school graduates, rural students have 3-4 times less chance to enter college than urban students

Figure 9 shows the differences of education expenditure per pupil for some cities and areas. Shanghai and Beijing are two of the most developed cities in China, while

Yunnan, Hubei, Shanxi and Guizhou are located at the less developed middle and western area of China

Chinese government has take means to smooth the gap between the urban and rural. Government will eliminate tuition & book fees for poorest students by 2007 and all students by 2010, give subsidies for living fees, offer scholarships, build schools, ban unlicensed teachers. Non-governmental organizations are encouraged to donate to build elementary schools, libraries, books and equipments.

**Figure 9 Education Expenditure per pupil, 1999**




(2) Deficiencies in Education for Women

A disproportionate portion of illiterates are women. The western rural areas have the most serious problems. The reason why girls are prevented from school includes: financial difficulties, labor needed by family, unfavorable geographical conditions and conventional ideas and customs.

(3) Unmet Education Needs of Migrant Children

During the progress of urbanization, more and more children of school age migrate to the cities following their parents. However, they are kept out of public schools by high fees, and most migrant children receive education at low-quality private migrant schools. 1.8 millions of the migrant children of school age are not receiving education at all. So far, no solid efforts are being made by the government to address the problem although some Provincial governments are beginning to deal with the issue.

### 1.3.4 Need based social support

#### 1.3.4.1 Unemployment Insurance

By the end of 2003 there were 103.73 million people who participated in the unemployment insurance scheme, which provided unemployment insurance benefits of varying time limits to 7.42 million laid-off employees throughout the year.

In 1999, the Chinese Government issued the "Regulations on Unemployment Insurance".

——All enterprises and institutions in urban areas and their employees must participate in the unemployment insurance program, under which employers pay 2% of their total wage bill and individuals pay 1% of their personal wages as unemployment insurance premiums.

——Laid-off persons must meet three requirements to qualify for unemployment insurance: having paid unemployment insurance premiums for at least one year; not having terminated their employment voluntarily having registered as unemployed and being willing to be re-employed.

——The unemployment insurance allowance shall be lower than the local minimum wage and higher than the minimum living allowance for urban residents. An unemployed person whose former employer and himself or herself have continually paid unemployment insurance premiums for more than 1 year but less than 5 years is eligible for benefits for up to 12 months; those who have paid the premiums for more than 5 years but less than 10 years will get benefits for up to 18 months; and those more than 10 years will be up to 24 months.

While guaranteeing the basic livelihood of the unemployed, the government takes means to promote re-employment by providing employment information, giving comprehensive employment guidance and occupational training.

#### 1.3.4.2 Guarantee of the Minimum Standard of Living for Urban Residents

In 1999, the Chinese Government promulgated the "Regulations on Guaranteeing Urban Residents' Minimum Standard of Living," which stipulates that urban residents with non-agricultural permanent residence permits whose family's per capita income is

lower than the local urban residents' minimum standard of living can receive basic subsistence assistance from the local government; those with neither source of income nor working capability, nor legal guardian, supporter or fosterer can receive in full the minimum living allowance according to the minimum living standard of local urban residents.

The minimum living standard is decided primarily on the basis of urban residents' average income and consumption level per capita, the price level of the previous year, the consumption price index, the local cost necessary for maintaining the basic livelihood, other connected social security standards, the materials for the basic needs of food, clothing and housing, and the expenditure on under-age children's compulsory education. Meanwhile, consideration must also be given to the level of local socio-economic development, the number of people eligible for receiving the minimum living allowance and the local government's fiscal capacity. Funds for this purpose are included in the fiscal budgets of the local governments. For local governments that have very tight budgets, the Central Government will provide financial support.

By the end of 2003, there were 22.47 million urbanites nationwide drawing the minimum living allowance, which was an average of 58 Yuan per person per month. A total of 15.6 billion Yuan for the minimum living allowance was allocated from government budgets at central and local levels in 2003, which included the 9.2 billion Yuan of the Central Government's subsidies to the disadvantaged central and western regions.

#### 1.3.4.3 Social Mutual Help

The state encourages and supports members of society to organize and participate voluntarily in the efforts to give help to the poor and needy, promotes the development of a social donation system, sets up and improves regular social institutions, and a network of offices and storage facilities to receive donations at any time from the general public. By the end of 2003, there were some 28,000 social donation centers in large and medium-sized cities and in some small cities with adequate facilities. From 1996 to 2003, a total of 23 billion Yuan in donations was received from the general public (including goods converted into money), together with 960 million pieces of clothing and quilts, which helped an accumulative total of 400 million disaster victims and poverty-stricken people. Governments at the grassroots level also operate community services to provide care and services to the poor and needy. Trade unions at

all levels organize "heart-warming activities" every year to offer help to badly-off families. From 1994 to early 2004, a total of 18.11 billion Yuan had been raised for this purpose, and 55.778 million sympathy visits had been paid to families of poverty-stricken employees.

## 1.4 poverty alleviation programs[2]

### 1.4.1 Trends and Evaluation of China's poverty reduction

Along with rapid economic growth (as high as 8.1%), China has made great achievements in poverty reduction ever since 1978 when the reform is commenced. According to China's national poverty line, rural poverty population has dropped from 250 million in 1978 to 28.2 million in 2002, decreasing by 88.7%. Poverty population has averagely decreased by 9.24 million per year (see table 5)

According to the international poverty line, which is that cost of living per capita per day is below $1, the World Bank estimates that China's rural poverty population has dropped from 280 million in 1990 to 124 million in 1997, decreasing by 55.7%.

It is also estimated by the World Bank that China's poverty population will drop to 74 million; the net decrease is 150 million, compared with that in 1999, which will account for 41.7% of the whole world's poverty reduction. In 1990, China's poverty population accounted for 29% of that of the world; the number has been down to 19.2% in 1999, decreasing by approximately 10%. It is forecast that the number will be down to 9.1% in 2015. China has experienced a period in human history in which poverty population decreased by a largest margin in the past two decades.

**Table 5 The annual rural poverty reduction, the growth rate of per capita GDP and farmers' consumption level**

| year | The annual poverty reduction announced by the government (10 thousand) | The growth rate of per capita GDP (%) | The growth rate of farmers' consumption level (%) | The growth rate of farmers' net income per capita (%) |
|---|---|---|---|---|
| 1978-1985 | 1786 | 8.3 | 10.0 | 15.1 |
| 1985-1990 | 800 | 6.2 | 2.5 | 3.0 |

[2] More detailed information is available in Hu angang(2003) and Information Office of China's State Council (2004)

| | | | | |
|---|---|---|---|---|
| 1990-1997 | 500 | 9.9 | 8.0 | 5.0 |
| 1997-2002 | 436 | 7.7 | 3.4 | 3.8 |
| 1978-2002 | 924 | 8.1 | 5.6 | 7.2 |

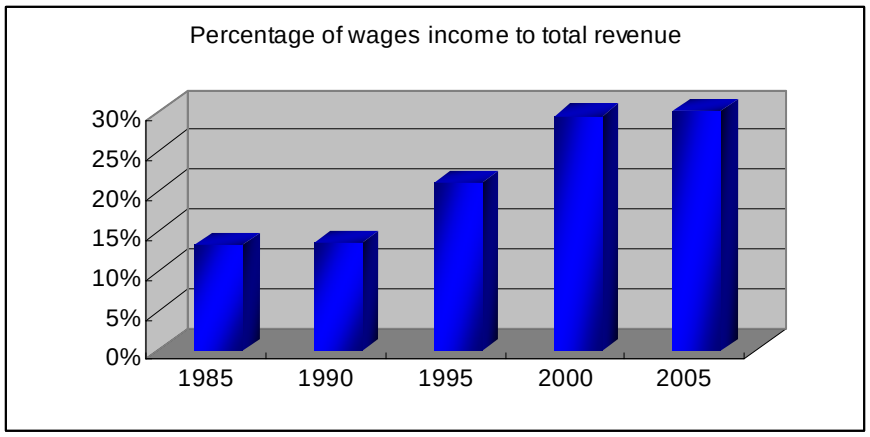
**Table 6 Number of People Living on Less Than 1$ Per Day Estimated by World Bank (Million)**

| region | 1990 | 1999 | 2015 |
|---|---|---|---|
| East Asia and the Pacific | 486（37.6%） | 279(23.9%) | 80(9.9%) |
| excluding China | 110(8.5%) | 57(4.9%) | 7(0.9%) |
| Europe and middle Asia | 6(0.5%) | 24(2.1%) | 7(0.9%) |
| Middle East and North Africa | 48(3.7%) | 57(4.9%) | 47(5.8%) |
| Latin America and Caribbean region | 5(0.4%) | 6(0.5%) | 8(1.0%) |
| South Asia | 506(39.2%) | 488(41.7%) | 264(32.6%) |
| Sub-Sahara Africa | 241(18.7%) | 315(26.9%) | 404(49.9%) |
| Total | 1292(100.0%) | 1169(100.0%) | 809(100.0%) |
| excluding China | 917(71.0%) | 945(80.8%) | 635(90.9%) |
| China | 375（29.0%） | 224(19.2%) | 74(9.1%) |

The main reasons why China can decrease poverty population by a large margin include (1) Continuous high economic growth is the basis for poverty reduction. In China, the annual growth rate of rural population's consumption level (the majority of China's population) is 5.6%; the annual growth rate of per capita net income of farmers is 7.2%, corresponding to doubling their per capita income every 9.7 years (see table 5), which is the major reason leading to China's great poverty reduction in rural areas. (2) A Great deal of rural labor force transfers to non-agricultural industries. More and more people are employed in village and township enterprises. The number has increased from 28.27 million in 1978 to 130.86 million in 2001, accounting for 26.7% of total rural work force, compared with the original ratio 9.2%. (3) Speeding up urbanization. China has experienced the largest population removing in the world since the policy of reform and open-up was carried out. This includes population transference, referring to moving from the place where one originally lives. In China's case, it refers to transferring one's household register or transforming from agricultural population to non-agricultural population, directly recruiting personnel for employment from rural areas. The ratio of wage income accounting for their total income has been up to 30.0% in 2005 from 13.2% in 1985 (Figure 10); (4) Human capital has been obviously

improved. As shown in table 7, average educational years of people above 15 years old has been increased to 7.11 years in 2000 from 4.64 years in 1982. (5) Anti-poverty actions adopted by the government. We will discuss it more detail in the following section.

**Figure 10 Percentage of wages income to total revenue**



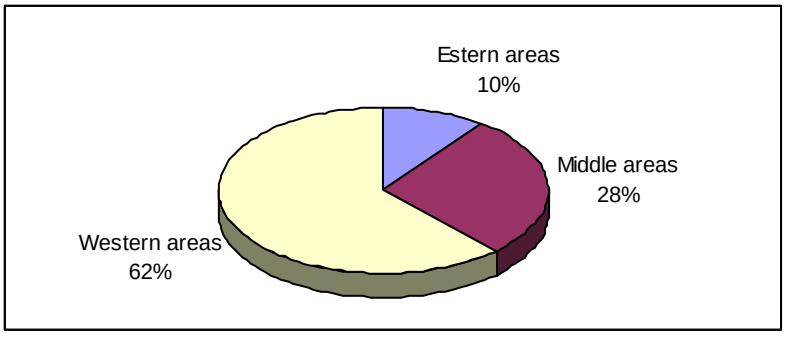

However, China slowed its pace of poverty alleviation ever since middle 1990s. According to the official poverty line, rural poverty population has totally decreased by 200 million in the period of 1978-2002, half of the decreased happened in the period of 1978-1985. In this period poverty population was annually decreased by 17.86 million per year, and the annual growth rate of per capita GDP is 8.3%. The growth rate of farmers' per capita consumption level and per capita income has been up to 10.0% and 15.1% respectively. However, after the second half of the 1980s (1985-1990), although China maintains a fairly high economic growth rate, there are still some indications that the pace of poverty reduction in rural areas has slowed down: the annual decease number of poverty population has reduced by half; poverty population has only decreased by 8 million annually; the average growth rate of farmers' consumption level per year is only 2.5%; the average growth rate of farmers' per capita net income is only 3.0%

In China's urban areas, poverty rate has gradually increased since the 1990s; especially the extreme poverty rate and dire poverty rate are obviously increasing. According to Khan's estimation, the extreme poverty rate has increased to 4.1% from 2.2% in the period of 1988-1995; dire poverty rate has increased from original 1.3% to 2.7%.

### 1.4.2 Main Characters of China's poverty

Main Characters of China's poverty include: (1) Most of the poverty population live in rural areas, the poverty degree of whom is much deeper than that of urban habitants. (2) The poverty rate is high in the western areas of China, where poverty population are the most concentrated and the poverty degree is the deepest across the country. According to the data given by the Rural Research Office of National Statistics Bureau in "A Monitoring Report on China's Rural Poverty (2001) ", in the 592 national poverty counties prescribed in 1986, about 2/3 of total poverty population are distributed in eastern and middle provinces but poverty population of these regions has decreased rapidly since then. In 2000, 10% of poverty population is distributed in the eastern regions in a fragmentary state; 28% of that is distributed in the middle regions; poverty population in the western 12 provinces and areas has increased by 590 thousand, mainly distributing in condensed state, accounting for 62% in total poverty population of the whole country (see figure 11 ).

**Figure 11 Regional Distribution of China's rural poverty population**




Great gap exists between urban residents and rural residents in terms of enjoying public services. Chinese government adopts public service policies that are preferable to cities. Rural population accounts for 2/3 of total population now, but only 1/ 7 to 1/10 of the fiscal expenditure of the government is directly spent on rural population, which results in rural areas lagging far behind urban areas in provision of public services such as basic education, fundamental medical care, family planning and in the areas of infrastructure such as irrigation, roads and communication, etc. The low level of rural public services not only restricts the improving of rural residents' living standard, but also restricts the developing ability and opportunities of rural residents, which makes they easily affected by poverty.

We will investigate the question more detailed when estimating the age-profile of public consumption.

1.4.3 Government Policies for the Aid-the-Poor Program

The Chinese government takes a series of policies to guarantee the Poor-alleviation programmer.

(1) Defining the Standard of Poverty in Conformity with the National Conditions.

The earliest standard was calculated by the relevant government departments in 1986, on the basis of the investigations of the consumption expenditures of 67,000 rural households, i.e., the standard of 206 Yuan in per-capita net income in rural areas in 1985. It was equivalent to 300 Yuan in 1990 and 625 Yuan in 2000. China's standard of poverty is the standard of the lowest expense to maintain one's basic subsistence. It can guarantee the basic living needs of the rural poor in China.

(2) Defining the Key Poverty-stricken Counties to Be Aided by the State

The Chinese Government has formulated the standard of the key poverty-stricken counties to be aided by the state, and identified a number of such counties. 592 counties in 27 provinces were listed as the key poverty-stricken counties to be aided, covering over 72 percent of the rural poor across the country. The series of policies and measures for development-oriented poverty relief work adopted by the Central Government in subsequent years were mainly centered on solving the problem of food and clothing of the people in the counties on the state priority list.

(3) Putting the Stress on the Poverty-stricken Areas in the Central and Western Regions

The Chinese Government started to readjust the regional structure of the allocation of the state poverty relief funds in 1994: adjusting the relief credit funds of the Central Government in the coastal economically developed provinces to favor the worst provinces and autonomous regions in the central and western regions, and earmarking the new relief funds from the central budget only for poor areas in those provinces and regions.

(4) Financial support

The special aid-the-poor funds of the Chinese Government mainly include two

categories: financial and credit funds. The former includes funds to support the development of the underdeveloped areas, the new financial aid-the-poor funds, and work-relief funds. To tighten the control of the aid-the-poor funds and improve their utilization benefits, the State Council formulated the unified Measures on the Management of the State Poverty Relief Funds in 1997, explicitly providing for the objects and conditions of the aid, with special emphasis on the requirement that these funds should be used complementarily according to the overall objectives and requirements of the Seven-Year Priority Poverty Alleviation Program, so as to form a concerted effort enabling the funds to generate overall benefits. The aid-the-poor funds from various channels should be mainly put into the following fields: The financial funds are to be mainly used in the construction of basic farmland, small irrigation works and country roads , providing drinking water for people and livestock, technical training and the popularization of practical agro-techniques; the credit funds are to be used in assisting the poverty-stricken households in crop cultivation and aquiculture and poultry raising projects to increase their incomes of the same year. At the same time, the special relief departments at all levels are required to strengthen the inspection and supervision of the management and use of the funds. Auditing departments are required to strictly audit the use of the funds and promptly deal with and problem once found. These measures have played a key role in improving the utilization benefits of the aid-the-poor funds and in realizing the objective of basically solving the problem of food and clothing of the poor according to the required schedule.

(5) Formulating Preferential Policies to Support the Development of the Poverty-stricken Areas and Peasant Households

China's preferential policies for the development-oriented assistance to the poverty-stricken cover two aspects-helping the poor households to solve the problem of basic living conditions, and supporting the economic development of the poor areas.

The preferential policies for helping the development of the poverty-stricken peasant households include: Waiving the mandatory state grain procurement quotas of households whose problem of food and clothing has not been solved; appropriately prolonging the utilization time limit of aid-the-poor loans and softening the terms of mortgage and guarantee, according to the actual situation; reducing or remitting agricultural taxes and taxes on special farm produce according to the relevant provisions of the regulations on agricultural taxation.

1.4.4 Main Characters of the Aid-the-Poor Program of China

(1) Adhering to the Policy of Development-oriented Poverty Alleviation

Adhering to the policy of development-oriented aid means centering efforts on economic construction, supporting and encouraging cadres and ordinary people in poor areas to improve their production conditions, exploit local resources, develop commodity production, and strengthen their ability to accumulate funds and develop by themselves.

The development-oriented policy include: encouraging the spirit of self-reliance and hard work; supporting poor peasant households to put labor into the construction of infrastructure; providing concessional loans for special aid items at discounted interest; conducting training in advanced practical agrotechiques in order to improve poor peasant households' sci-tech and cultural levels.

(2) Bringing Aid targeting the Individual and Households

Since the beginning of the 1990s, China has paid special attention to making aid accessible to individual villages and households. Main policies include:

—Organizing cadres at all levels to form a one-to-one aid relation

—Encouraging enterprises to cooperate with peasant households in setting up bases for producing or processing agricultural products;

—Persuading peasants to move from their native places, where production and living conditions are exceptionally bad, to places with better conditions.

—Providing small-amount credit loans. By 1999, a total of three billion Yuan had been loaned to over 2.4 million poor peasant households.

(3) Aiding the Poor with Technology and Education

In 1996, the Chinese government formulated an Outline of the National Plan for Aiding the Poor with Technology (1996-2000), strengthening the policy guidance for aid along this line.

--Providing special funds for aiding the poor introducing, testing, demonstrating and promoting improved seed strains and advanced practical technologies, and for conducting technological training. Since 1995, over 10 billion Yuan has been provided

for the purpose.

--Encouraging institutions of higher learning and scientific research institutes to promote advanced practical agro-techniques in poor areas.

(4) Mobilizing and Organizing All Social Sectors to Participate in Aiding the Poor

Since the mid-1980s, more and more units and organizations have participated in development-oriented aid-the-poor work, including central government organs, enterprises and institutions, non-Communist parties and mass organizations, and the scale has been steadily enlarged. Non-governmental organizations and private enterprises have actively initiated or participated in a wide spectrum of aid-the-poor activities, such as the Hope Project, Cause of Glory, Aid-the-Poor through Culture, Happiness Project, Spring Buds Program, Young Volunteers' Project of Supporting Education in Poor Areas in Relays, and Poor Peasant Households' Self-Support Project. A project aimed at helping children from poor families to go to school, the Hope Project has received a total donation of nearly 1.9 billion Yuan from both home and abroad since its inauguration in 1989, with which to fund the establishment of 8,355 Hope schools and help nearly 2.3 million children to go to school.

(5) Cooperation of the Eastern and Western Regions in the Aid-the- Poor Work

In order to speed up the pace of eliminating poverty in the western region, China has adopted the idea of getting the more- developed provinces and municipalities in the east to support the development of their western counterparts.

In the 2001, nearly 2.14 billion Yuan-worth of donated funds and materials have been provided by the governments of 13 provinces in the east; 5,745 project agreements have been signed; investments of over 28 billion Yuan have been agreed upon, of which over four billion Yuan has already been invested; and 517,000 workers have been transferred from the poor areas from the east area.

(6) Encouraging Migration

The state encourages and supports poor peasant households to move out of areas with extremely difficult living conditions to more favorable areas. The major methods of aiding the poor by migration include:

--Governments subsidize the poor households for migrating and resettling near their relatives or friends.

--Governments establish migrants' settlements, and make sure that their basic needs are met.

--The migrants are allowed to keep their old homes until the new settlements are well in shape for stable production and habitation.

In the recent year, about 2.6 million of the poor have been relocated in various ways and through various channels, among whom 2.4 million have already settled down. The total poor population that needs to migrate has shrunk from 7.5 million to about five million.

(7) Transferring Labor from Poor Areas

(8) Promoting International Cooperation in Aid-the-Poor Work

# II. Progress Made on NTA Account

## 2.0 Work progress

We have report in NTA Workshop II some data problems we encountered and our research result subject to the available data source then. After NTA Workshop II, we try to get the national household survey data from the National Bureau of Statistic but failed.

Luckily, not long ago, our biggest progress is coming across another data source: the Chinese Household Income Project (CHIP) data by the China Social Science Academy. However, the only available wave so far is CHIP 95 conducted in 1995. The sample size of CHIP95 (over 50,000 individuals) is much bigger than our previous data (no more than 5000 individuals). So we shifted our aggregate control data to the year 1995 and redo all the estimations.

In this part, we will discuss our latest progress from CHIP95 data of the year 1995. The earlier result by other data source (which is for the year 2002) will be reported as the appendix. Why we do so is that the sample size of CHIP95 is much larger. We are in the progress to negotiate with the China Science Academy to get the CHIP2003 data. We plan to focus our attention to the CHIP data to ensure consistency.

## 2.1 Data Source

### 2.1.1 Public account

For the public account, we use (1) Statistical Yearbook, including the National accounts, data of the public finance, aggregate data of the household income, savings and expenditure. (2) Population census data. China has population census every ten years, and the latest one is in year 2000. The data contains information concerning mainly the demographic characters as well as other variables as residence arrangement and so on. (3) Some specific yearbooks. Almost all the departments of the central government in China have statistical yearbook, such as Finance Statistical Yearbook, Education Statistical.

### 2.1.2 Private account

For the private account, what we applied before NTA workshop II are (1) Income and Expenditure Survey (IES2003) conducted by the Bureau of Statistic and the China Social Science Academy launched such a survey to investigate peoples living status in China. (2) National Health Service Survey (NHSS2003), Every 5 years, the Ministry of Health launches a health service survey to see the health status and health resources in China. The latest one is in year 2003; (3) Rural Household Income Survey (EHIS2003), The Ministry of Agriculture has an annual survey for rural people. The China Center for Economic Research co-organized the survey in 2003 with the MOA. But it lacks of consumption information; (4) National Aged Population Survey (NAPS2004) conducted in 2005. Information concerning the aged population's health and economic status are reported. More luckily, the survey also includes information concerning their adult child, including income and expenditure, which can be used as household survey data. We use the data to estimate the age profile of expenditure on healthcare, education and others for the urban area and the intra household transfer data.

These data bases are fragmental and not consistent. For example, in the NAPS2004 data, the youngest adult child of the surveyed old is 35 years old, without any individuals aged below 35, which leads to obvious bias when the date is applied to estimate the age-profile of the consumption and labor income. For another example, we just estimate the age-profiles of different type of expenditure by different data base: health expenditure from one data base while education expenditure from another data

base, before merging them together. Such methods will lead to bias and inconsistency.

After NTA Workshop II, we try to get the national household survey data from the National Bureau of Statistic but failed. Luckily, our biggest progress is coming across another data source: the Chinese Household Income Project (CHIP) data by the China Social Science Academy not long ago. The data is conducted every 7 years. So far, three waves of surveys have been conducted at 1988, 1995 and 2002 respectively. We reshuffle our research based on the CHIP1995 data, and will report our main result in the report. We will also briefly report our earlier result before the introduction of the CHIP data.

The CHIP95 survey is conducted at the rural and urban area separately. The rural data contains 7998 households and 34736 individuals, while the urban data contains 6931 households and 21696 individuals. Statistical analysis shows that the sample is well representive.

Both the urban and rural data contain information concerning (1) personal character, such as age, gender, relation to the house head, work status, education level, etc; (2) Individual income of different categories, including earnings, benefits, self-employment income, enterprises income, assets income, transfer income and tax. (3) Saving and assets data at the household level, including the stock of assets, market value of durable goods；(4) Expenditure data at the household level, including education expenditure, training expenditure, healthcare expenditure and other expenditure.

## 2.2 Short description on unique methodology

We will briefly introduce the main aspects of our modification to the typical methodology and then will discuss them more detailed in the corresponding parts when we report the estimation result.

### 2.2.1 Separately estimation between urban and rural area.

The reasons why we estimate the rural and urban separately are, firstly, most of the micro data in China is collected and reported separately. Secondly, there is a big gap between the rural and urban China. For the private accounts, people may have different behaviors, while for the public accounts, government expenditures (public resources) are allocated more in the urban areas. The transfers from the rural to the urban are an

important issue in Chinese economy. Now Chinese government is making more policies to change this transfer direction. So separating the rural and urban in NTA research may have important policy implications.

After estimating by rural and urban, we merge them together to get the national data.

#### 2.2.2 Try regression method to estimate private other consumption

We applied regression method as well as equivalence scale method to estimate the private other consumption profile to investigate the different consumption patterns of China's elderly. We will compare the two methods. The results we report are still based on equivalence scale method to make them comparable to other countries.

#### 2.2.3 Draw some aggregate control variable directly from survey data.

The 1995 aggregate data is not so detailed as that of 2003, some aggregate control data is not reported (or by different index system) from the Statistic Year Book. We directly multiply the per capita value with the population to get the aggregate control variable.

## 2.3 NTA Estimation Results

### 2.3.1 Consumption

#### 2.3.1.1 Private consumption

Almost following the methodology suggested at the NTA website, we use CHIP (1995) data to estimate the age-profile of private consumption, including healthcare consumption, education consumption and other consumption, and use Statistical Yearbook to decide the aggregate level.

Some modification is made due to the shortage of the data: (1) The amount of aggregate private consumptions for both the rural and urban is reported directly by the Statistical Yearbook, while the structure of it is determined according to survey data. (2) The statistical Yearbook just reports the expenditure on "Education Cultural and

Recreation Services", while another statistic report the ratio of education consumption to the "Education Cultural and Recreation Services" of the urban area (54.8%), we calculate the education expenditure of the urban area by this ratio, and ASSUME 2/3 of rural expenditure on "Education Cultural and Recreation Services" is education expenditure, as the rural population spend less on the culture and recreation. Further evidence is needed to support the assumption.

Figure 12 and 13show the basic shape of the age consumption profiles of the urban and rural separately.

**Figure 12 Private consumption, urban, 1995**

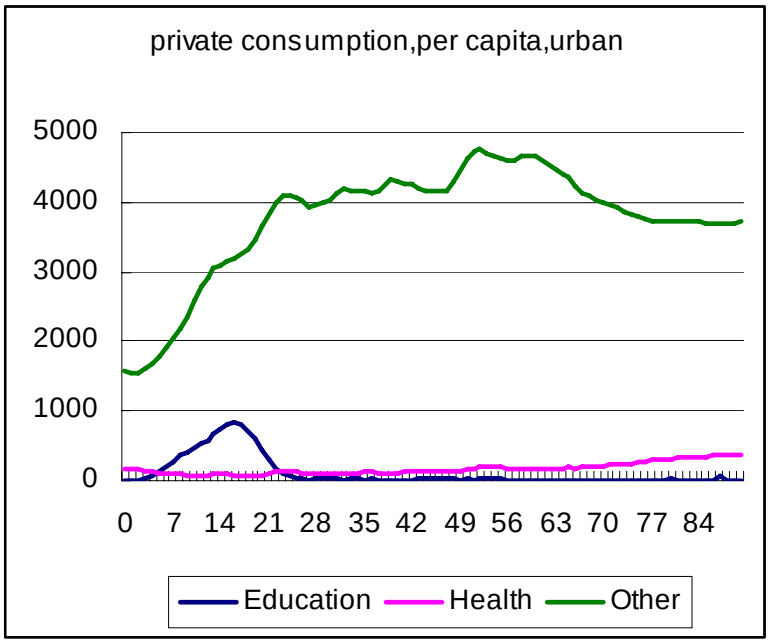
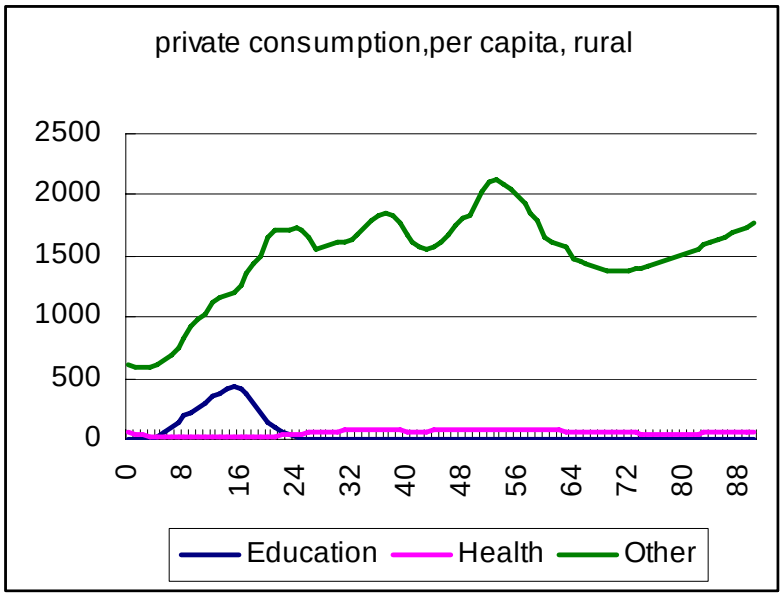



**Figure 13 Private consumption, per capita, rural, 1995**



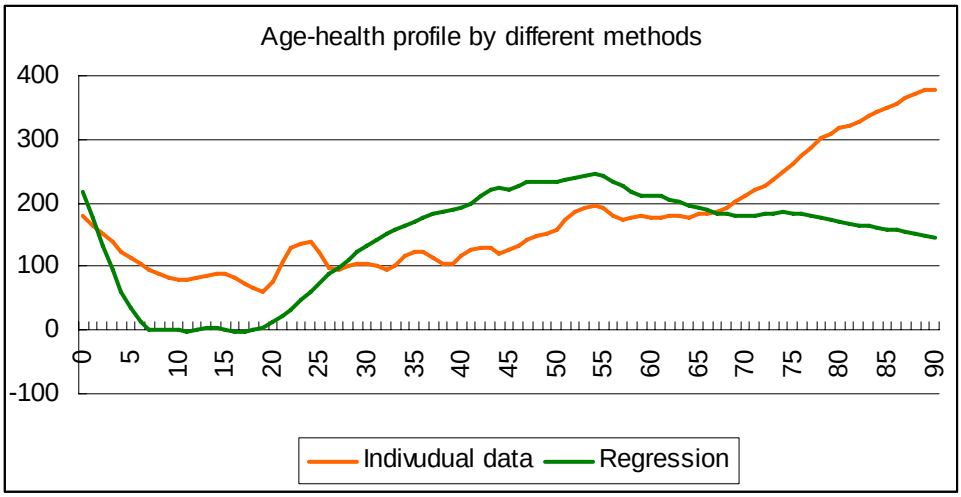

We will discuss the following characters of the shape more detailed:

[1] Healthcare expenditure

We firstly test the adaptability of the regression method in estimating the age-health profile, then we compare the

The data base of urban area report both the individual spending on healthcare of each household members and the total household healthcare expenditure. However, the sum-up of the former does not equal to the latter, it may be due to statistic error. The data ensures us to estimate the age profile of healthcare expenditure using both repression method and directly citing the individual data. Figure 14 shows the results of both methodologies:

**Figure 14 Age-health profile by different methods, urban, per capita, 1995**




After comparing the estimation result by the two means, we can see the basic shape is similar, while the regression method devalues the healthcare expenditure for age group 10-20 and overestimate those for age group 30-60, if we assume the individual data is more accurate.

Table 7A shows our regression result. P4, p9….are interpreted the same as that suggested by NTA methodology guidelines. The coefficient is interpreted as the average healthcare expenditure at the very age group. We discover that for the young household members, (p9, p14, p19) the coefficient is not significant, and 2 of them are even negative. The other coefficient is positive and has reasonable values. It may be interpreted as the young consumes the least proportion of healthcare expenditures, so that they have less effect on the total healthcare expenditure. However, when applying regression method to gain other-consumption profile, we get the similar result (the coefficient for the young age group is not significant). We are not very clear the reason. If the coefficient of the p9, p14 and p19 are not significant and even negative, how to ensure that the age-profile is correctly estimated? We wonder whether other countries have come across the same question and leave it as our problem. The two numbers in each blank is the coefficient and the stand error respectively.

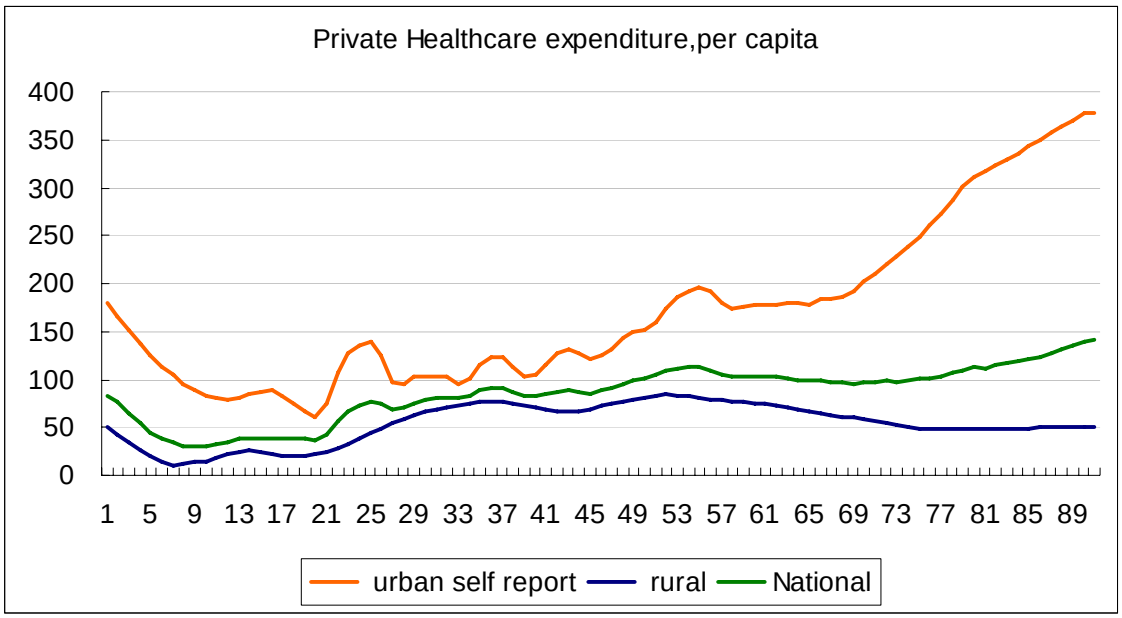
**Table 7A Regression result, urban private healthcare expenditure**

| p4 | p9 | p14 | p19 | p24 | p29 | p34 | p39 | p44 | p49 | p54 | p59 | p64 | p69 | p70 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 149.1 | -42.5 | 29.7 | -25.4 | 26.6 | 102.4 | 159.2 | 191.7 | 225.4 | 237.3 | 272.1 | 280.5 | 148.3 | 195.6 | 183.2 |
| 58.8 | 39.3 | 45.9 | 39.6 | 34.4 | 37.4 | 22.7 | 30.5 | 28.8 | 30.1 | 38.5 | 65.7 | 24.2 | 37.7 | 39.7 |
| ** | | | | | *** | *** | *** | *** | *** | *** | *** | *** | *** | *** |

In the following, we compare the age-profile of healthcare expenditure for the rural

and urban area. Figure 15 shows the age-health profile of the urban and rural.

**Figure 15 Private Healthcare Expenditure, per capita, 1995**

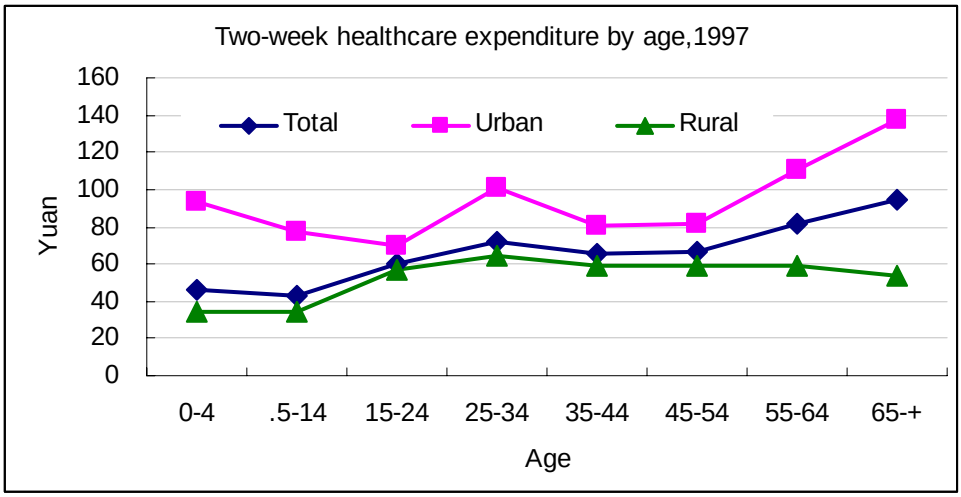



We conclude from the chart (1) Big gap exists between the urban and rural. The per capita private healthcare expenditure is 125.4 Yuan in the urban and 51.5 Yuan in the rural. (2) The shape of the curve for the rural area is somewhat "strange" compared with that of the urban and most other countries, in that it is downward after about 50 years old, while in normal cases, the curve is highly upward, and the older, the sharper.

The "strange" curve may be interpreted as data error; however, we in fact get significant coefficients for the age group 20 and above when estimating the age-profile by regression method. The only insignificant coefficient is those of younger age groups (less than 20 years). Even if it may lead bias for the estimation of the young's health expenditure, it will correctly give the relative weight for the middle ages and the elderly.

The result of the 2nd National Healthcare Service Survey by National Ministry of Health supports our conclusion. The survey investigates the two-week healthcare expenditure of different age groups. Figure 16 shows the result.

**Figure 16 Two-week healthcare expenditure of different age groups, 1995**




Source: 2nd National Healthcare Service Survey

The left question is why the elderly consume less. It may be interpreted as: subject to the budget constrain, the household choose to allocate more resource to the mid-ages rather than the elderly when they get sick. To test the hypothesis, we calculate the income elasticity of the "healthcare consumption of the young (defined as the sum of health consumption for household members of 25-50 years old for any given household) and the "healthcare consumption of the old (defined as the sum of health consumption for household members of 50 years and above accordingly). We conclude that the income elasticity of the health consumption of the young is 0.35, while the elasticity of the health consumption of the elderly is 0.25. It may an evidence to support the hypothesis that the household will allocate more resources to the mid-ages. The absolute value of the income elasticity is less than one, it may be interpreted that health care in the rural is necessity.

Table is the regression result for the rural when estimating age-health profile. The two numbers in each blank is the coefficient and the stand error respectively.

**Table 7B Regression result of the rural when estimating age-health profile**

| p4 | p9 | p14 | p19 | p24 | p29 | p34 | p39 | p44 | p49 | p54 | p59 | p64 | p69 | p70 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 28.1 | 1.97 | 18.6 | 8.60 | 14.0 | 55.0 | 70.6 | 79.0 | 77.9 | 96.5 | 87.2 | 92.1 | 58.3 | 43.8 | 42.1 |
| 14.4 | 16.1 | 10.9 | 8.70 | 10.35 | 11.3 | 23.2 | 10.8 | 10.0 | 11.8 | 11.3 | 21.4 | 15.1 | 18.3 | 15.8 |
| ** | | ** | | ** | *** | *** | *** | *** | *** | *** | *** | *** | *** | *** |

[2] Regression method applied for other consumption

Similarly, we estimate the other expenditures by means of equivalence-scale method

as well as regression method. In our guideline, other household consumption is allocated to individuals using an *ad hoc* allocation rule, that is, equivalence-scale allocation method. Consumption of individuals living within any household j is assumed to be proportional to an equivalence scale that is equal to 1 for adults aged twenty or older. However, we infer that the method may lead to bias in China's case. China is during rapid social and economic transition, and the consumption patterns of different age groups may have great diversities. For example, in modern China, the elderly formed their consumption habit during the era filled with war and famine, while the middle-ages and the young grew up together with the market-orient reform and rapid economic growth, as well as the introduction of modern culture. To test whether the consumption pattern varies much across ages, we applied regression method to test whether equivalence-scale method, which assume a young man of 20 consume the same as a man of 80 years old.

For each household *j* and household member *i*, the individual expenditure on other goods is estimated by regressing, at the household level, total household consumption expenditure on other goods on the number of household members in each age group. The relationship is as follows:

$$q_i = \sum_f \beta_f N_{fj}^e + \varepsilon_j$$

$q_i$ is educational expenses for household *j*, $N_{fj}$ is number of household *j* member of age group *f*. The age groups are constructed from 0 years old on; each age group contains 5 years. Coefficient $\beta_f$ obtained from regression equation is interpreted as average cost of other consumption goods of each household member or average expenditure by age. This coefficient is employed to calculate the share of consumption expenditures on other goods of each member. I allocate other consumption expenditure to each member *i* of the household *j* by:

$$\hat{q}_{ij} = q_j \left[ \frac{\hat{\beta}_{fi}}{\sum_{i \in j} \hat{\beta}_{fi}} \right]$$

The regression result is summarized as follows, together with the result estimated from equivalence scale method.

**Figure 17 Private Expenditure, other consumption, urban, per capita, 1995**

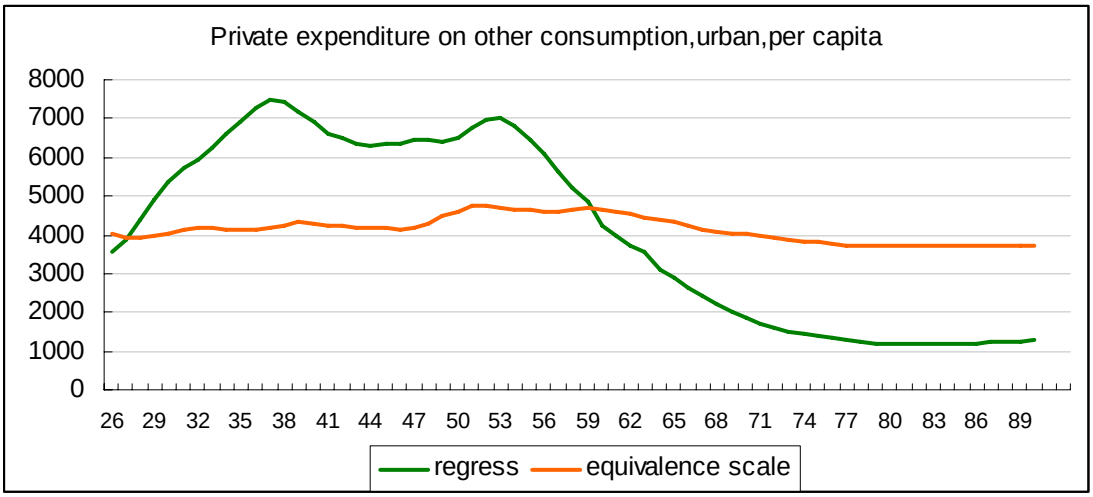
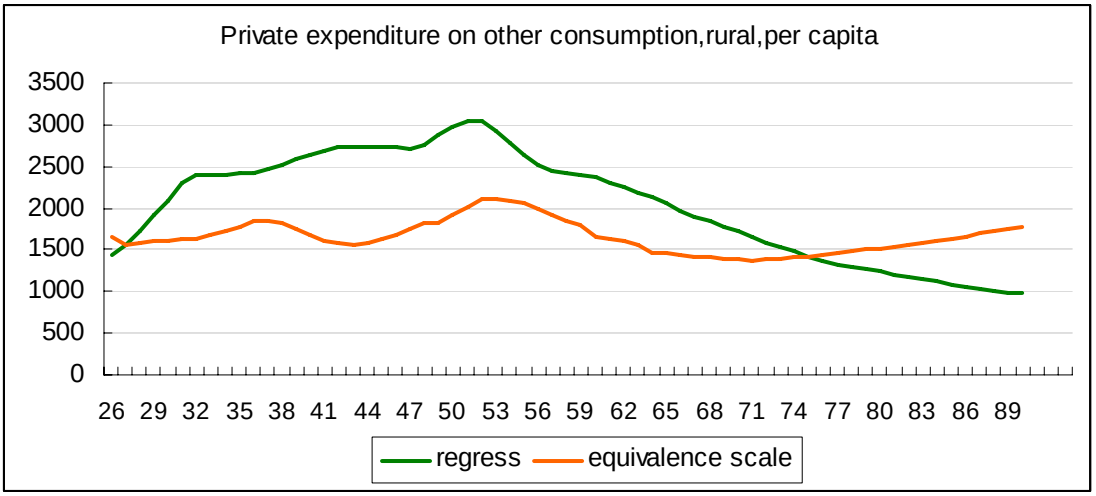



**Figure 18 Private Expenditure, other consumption, rural, per capita, 1995**




Just like the case of healthcare expenditure, the coefficient $\beta_f$ of the younger age groups is not significant, with some $\beta_f$ even being negative. However, $\beta_f$ of the age groups over 25 years old are highly significant, so that it does not harm our estimation on the relative scale of consumption for the middle-ages and the elderly.

Judging from the chart, compared with the equivalence scale method, the regression method gives relatively low consumption scale for the elderly, especially for the urban. Though the regression method doesn't give normal result of the younger age, it is the most precious estimation to the age-other consumption profile subject to our

data. We will discuss the reason why the elderly consumes so low.

The quite low consumption level of the Chinese elderly may be attributed to (i) the consumption habit, those who have experienced the war and planned economy are used to be frugal. China's traditional culture also encourages the virtue of being frugal. (ii) The weakness of healthcare insurance system. The elderly save resources as a precautionary behavior to cope with implicitly health behavior. (iii) Bequest motivation.

However, current data is not sufficient for us to test our assumption. We will regress the consumption of the old (over 65 years old) on his labor income, pension, and household transfer to raise the elderly, to estimate the consumption rate with respect to total income and the elasticity to his/her healthcare expenditure….The result is as follows:

**Table 8 Regression result: other consumption of the elderly**

| Other consumption of the elderly | Coefficient | (SE) | |
|---|---|---|---|
| Relation to the house head | | | |
| Spouse | 724.1668 | 344.2914 | ** |
| Children | 2213.771 | 593.851 | *** |
| Children in law | 2334.463 | 972.2817 | ** |
| grandchildren | 2273.713 | 946.7466 | ** |
| parents | 1507.584 | 721.898 | ** |
| Parents in law | -309.3625 | 915.8929 | |
| Brother or sister | 2462.927 | 1355.476 | * |
| Gender | | | |
| male | -1113.085 | 272.2061 | *** |
| Income | | | |
| Individual income | .1540517 | .0491362 | *** |
| Individual health exp | .4577927 | .1567219 | *** |
| Individual pension | .2481779 | .0581118 | *** |
| Household transfer to raise the elderly | -.1419059 | .1418074 | |
| Household wealth | .0314673 | .0325954 | |
| Education level | .3901664 | 1.124453 | |

Judging from the regression result, we infer that the total income of the elderly him/herself, his/her pension have positive effect on his/her expenditure on other consumption, however, the transfer from the children does not affect his/her consumption on other goods and service significantly. The result shows that the elderly

consumes less because he/she earns less. The downward other-consumption may be caused by the relatively low income of the elderly him/herself. It also shows that the other consumption of the elderly is not sensitive to the transfer from the children.

2.3.1.2 Public consumption

Data source: *China Statistical Yearbook*，*China Education Statistical Yearbook, The 2nd National Healthcare Service Survey.* We use the structure of Government Budgetary Expenditure to estimate the government consumption expenditure (i.e. instead of the National Account), as the National Account merely contains the total amount of government consumption without any information concerning the structure of public expenditure.

The total government expenditure at 1995 is 635.9 billion Yuan, including government consumption and government investment, while the government consumption by the National Account is 712.3 billion Yuan. The gap between them may be attributed to different statistical system. We infer that the latter data contains not only government consumption but also investment, as well as transfers. As the government expenditure data is more detailed in the structure of expenditure, so that we can allocate the variety categories of public expenditures by different rule, we apply the data on public expenditure to estimate public consumption profile. Government expenditure on the interest payment is excluded from government expenditure.

For public education expenditure, we distribute the total education expenditure by the budgetary expenditure of school at different level. Estimate the student number at different level by age (using the enrollment at different level by age from the census data at 2000).

The public healthcare expenditure is distributed in proportion to the private healthcare expenditure spent in the hospital. In China, government healthcare expenditure is subsidized directly to hospitals, so we assume those who go to hospitals receive the government subsidy in proportion to their spending in the hospital. As generally speaking, the more the patient spent, the more labor force, equipment or medicine he or she consumes.

The expenditure for supporting agricultural is distributed among rural populations in proportion to labor income. The expenditure for supporting city construction is distributed among urban populations averagely.

Some other categories of government expenditures are separated to the urban and rural firstly. The reason why we do so is that the supply of public goods and service have big gap between the urban and rural. In other countries, government expenditure on public goods such as transformation, communication and culture service can be distributed per capita. But in China, it will lead to obvious bias. The ideal way to solve the problem is using the data on the expenditure spent to the urban and rural respectively and then distributing them by per capita within the urban and rural population. However, our government expenditure data is reported at the national and province level and not separated to urban and rural. In practice, we are in lack of solid data on the gap between the utilization of public infrastructure——such as highway, though it is obvious that all highways are located in the urban area and serving mainly the urban population. Subject to the data constraint, we separate as many as possible categories of public expenditures by urban and rural. The rule is as following:

**Table 9 Rules of allocating the government expenditure to the urban and rural**

| | |
|---|---|
| Public health expenditure | In proportion to private healthcare exp. |
| Public education expenditure | According to the enrollment rate at different levels |
| Public expenditure on culture and science | In proportion to the household consumption on culture, education and science |
| The expenditure for supporting agricultural | among rural populations in proportion to labor income |
| expenditure for supporting city construction | distributed among urban populations averagely |
| Communication and transport expenditure | In proportion to the household consumption on transport and communication |
| Price subsidy | In proportion to the total household consumption |
| Defense and other expenditure | Distributes nationally per capita |

Figure 19 and 20 show the age-profile of public expenditures in terms of the urban and rural. The shape of China's age-public consumption profile is similar to most other courtiers. What is special is that (1) Great gap between the urban and rural. The per capita government expenditures are 598.5 Yuan for the urban population and 350.7 Yuan for the rural population. (2) The public expenditure on the education and the healthcare accounts for lower proportion to the total public expenditure in the rural than the urban, which is due to low education enrollment and low utilization rate to the healthcare service of the rural population. In China, the education expenditure and healthcare expenditure is directly subsided to the institutions rather than the individual, so those

who consume the service more will get more government subsidy.

**Figure 19 Public Expenditure, Urban, Per capita, 1995**

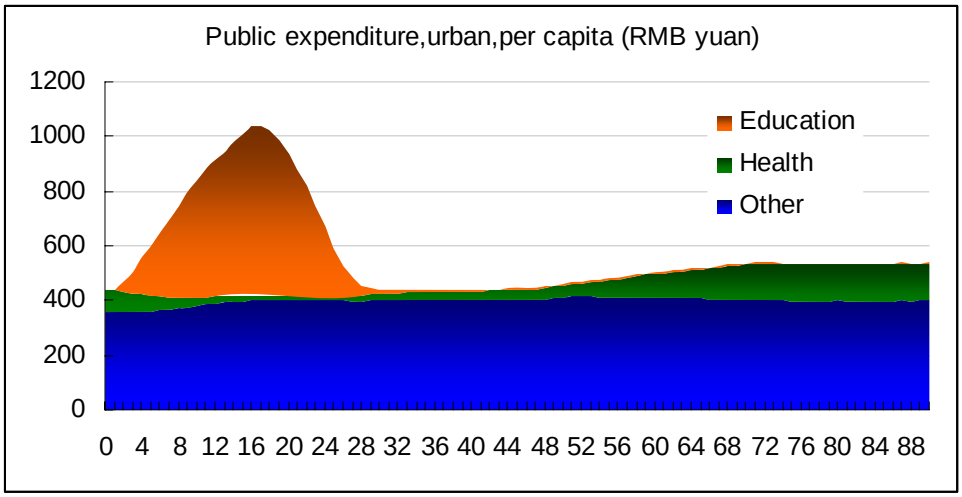
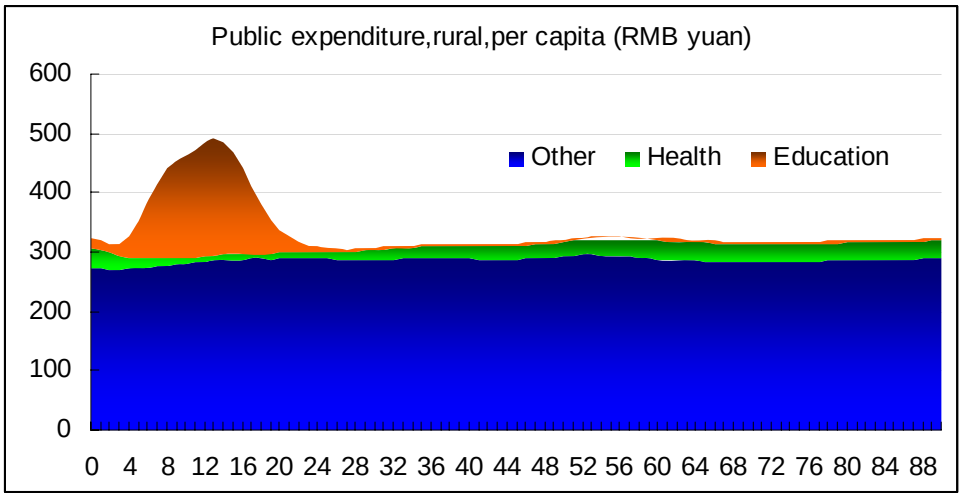



**Figure 20 Public Expenditure, Rural, Per capita, 1995**




2.3.2 Labor Income

We estimate the age-labor income profile following standard methodology. What should be noted are: (1) the aggregate data omits total labor income, so we calculate the total labor income directly by multiply per capita labor income from the survey data with the population. (2) The agriculture income for the rural is considered as self-employed income, and 2/3 of it is taken as labor income.

Figure 21 and 22 show the shape of per capita labor income.

**Figure 21 Labor incomes, urban, per capita, 1995**

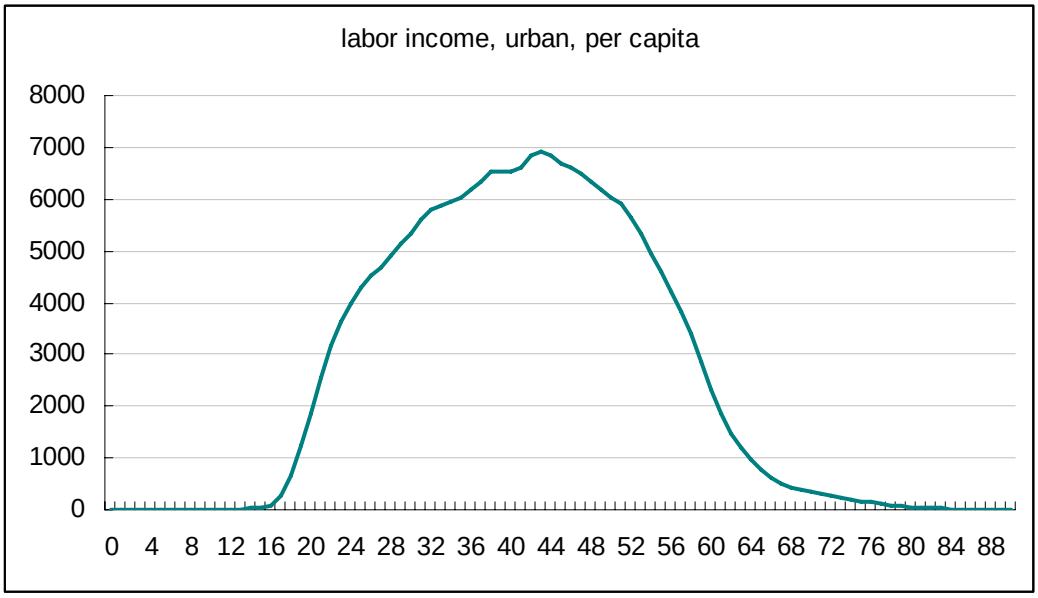
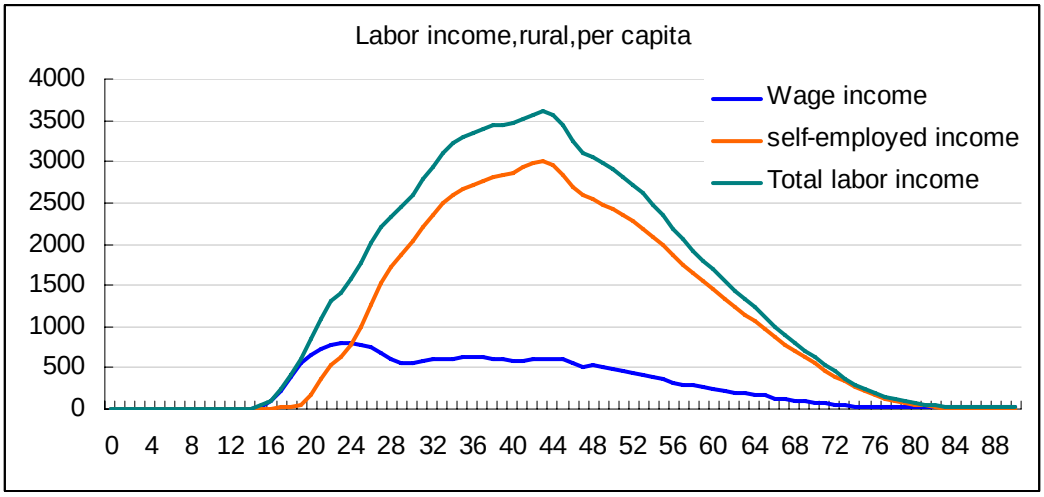



**Figure 22 Labor income, rural, per capita, 1995**




After comparing the shapes of these profiles, we conclude that

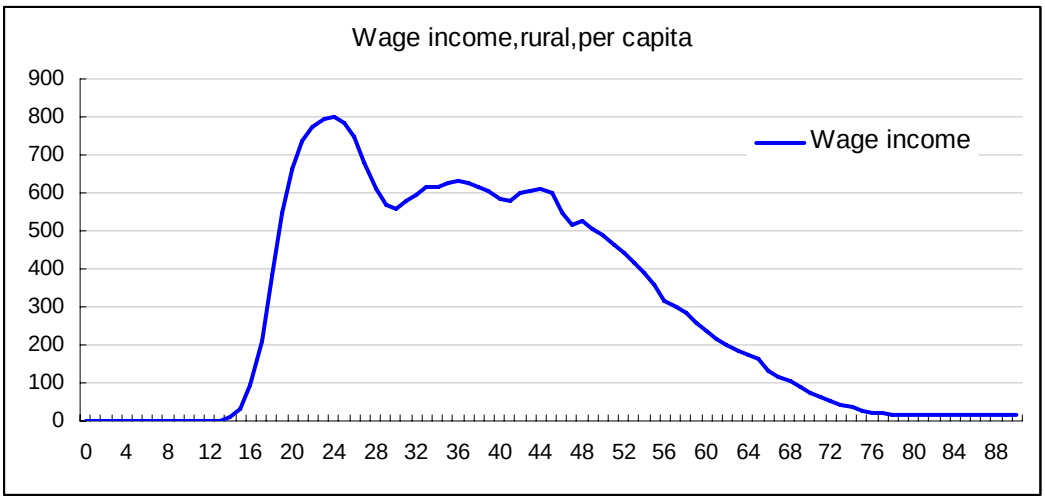
(1) The average level of the labor income in the rural (3457.6 Yuan) is 2.15 times that of the rural (1605.3 Yuan). Labor income is the major component of total household income, so that the gap of labor income contributes much to the income diversity between urban and rural.

(2) The age-labor income curve of the rural is much “fatter” than the urban, that is,

the labor income is distributed more averagely across the middle and old ages. The average labor income of the rural population at 60 years old is 47% of the max value (which is at 43 years old), while the labor income of the urban population at 60 is only 33% of the max value (at 43 years old). The reason is that the self-employed income account for the majority of labor income. As we have mentioned above, more and more young peasants shift from informal sector to the formal sector (partly by migrating from the rural area to the urban area). But for agriculture work, the work age can last as old as 70 years old. See figure 24 for reference.

(3) Another interesting phenomenon is the shape of the age-wage income curve of the rural. We reprint it below in Figure 23. The peak of the curve is located at the age of 23, and decreases sharply between 23 to 28 years old, then keeps flat until 45 years old, and then decreases smoothly.

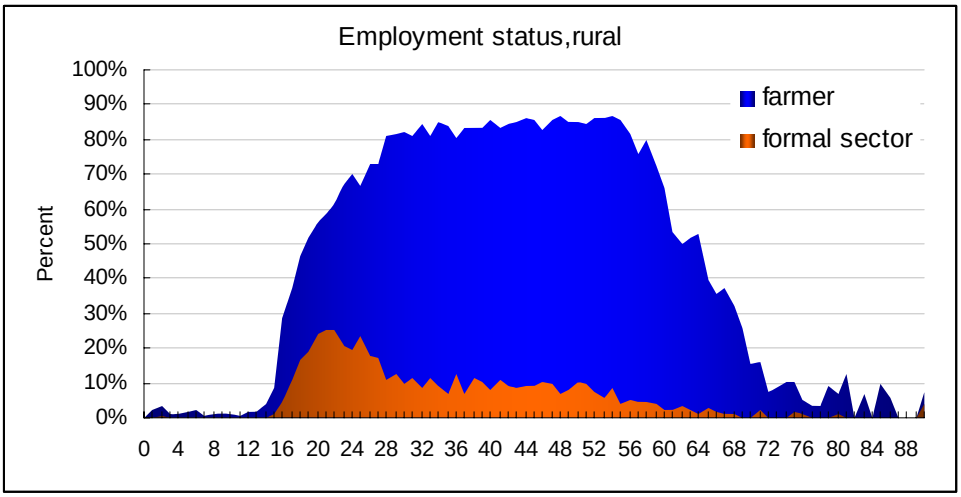
**Figure 23 Wage income, rural, per capita, 1995**




I should make clear the variable I use before discussion. The CHIP survey reports the individual's income from pensions, wage, bonus, income from the part-time job, in-kind transfer from the employer. All of them are from formal sector. In order to explain the shape of the profile, we investigate the employment status for the rural population by ages. The result is in Figure 24. We can see clearly that the high employment in the formal sector contribute to the high wage income for the age groups 18-25.

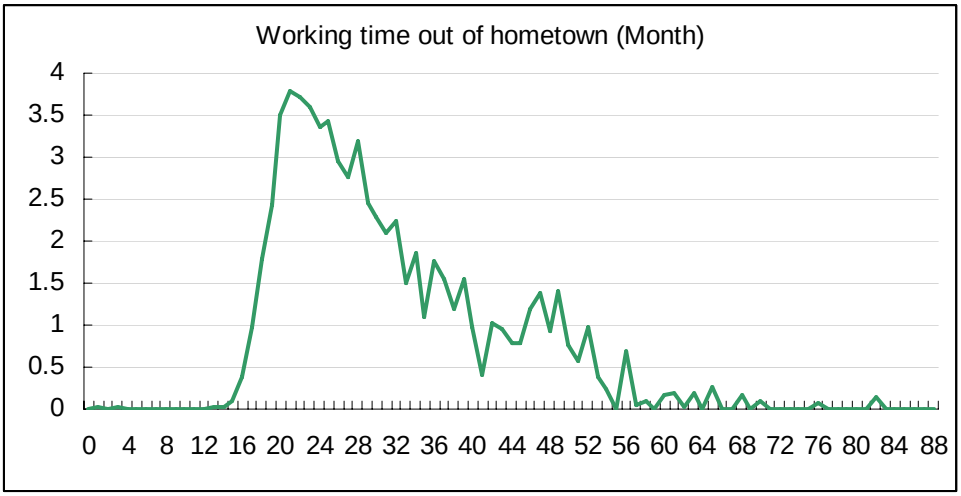
Figure 25 shows the importance of migration in improving the income of the rural population. The working time out of his/her hometown is heavily consistent with the shape of labor income and formal sector employment.

**Figure 24 Employment status of the rural population, 1995**




Notes: The CHIP data reports 9 categories of employment status, which is (1) farmer, (2) private enterprises; (3) self-employed household; (4) Village enterprises; (5) other collective enterprises; (6) States-Owned Enterprises and public service unit; (7) Sino-foreign joint ventures; (8) exclusively foreign-owned enterprises (9) unemployment. We take (2) (4) (5) (6) (7) and (8) as formal sector, (1) and (3) as informal sector.

**Figure 25 Average Working Time out of Hometown, 1995**



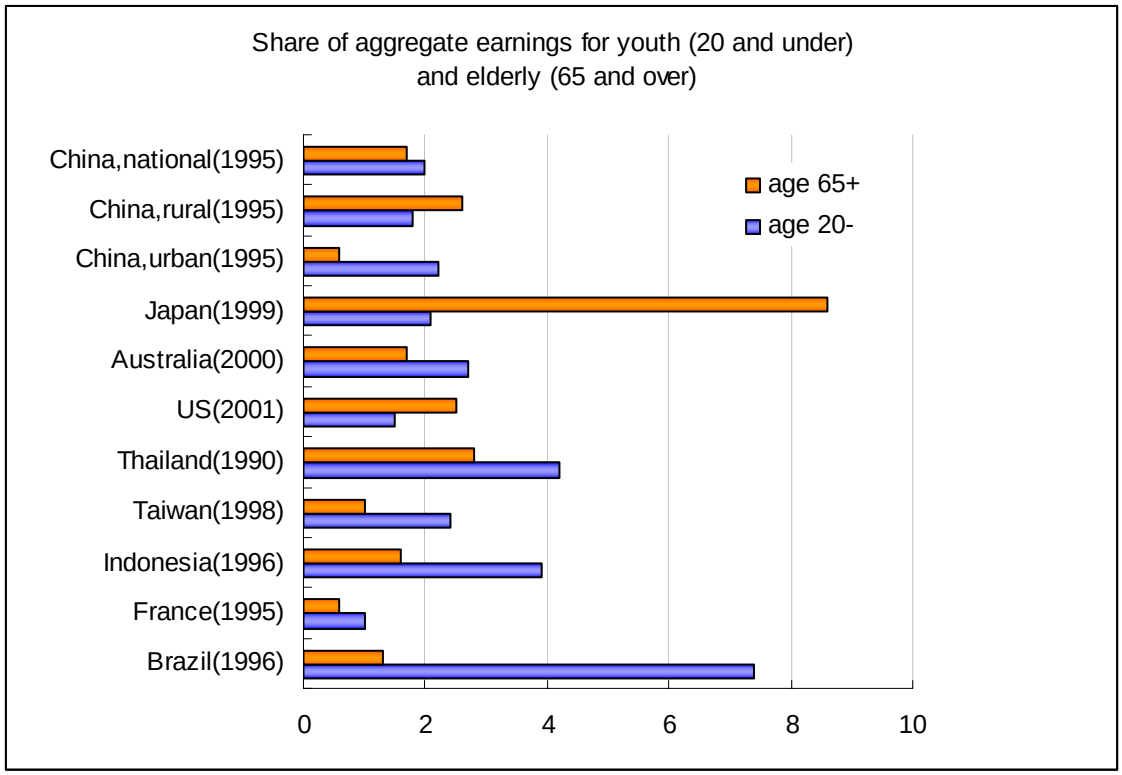

International Comparison

Ronald Lee (2004) discusses the shape of labor income, the shapes fall into one of three types: (1) Brazil type, where the young account for a substantial portion of

aggregate earnings, peaking in the early 30s and dropping sharply after that. (2) France type, where the young and the elderly accounts for a small share of aggregate earnings, with peaking in the early or mid 40s. (3) Japan type, where people aged 60 and above account foe substantial portion of aggregate earnings. The share of young workers is much less than any other countries.

Just as figure 2 in Lee (2004), we calculate the share of earnings for ages 20 and under (20- ) and ages 65 and older (65+). See Figure 26.

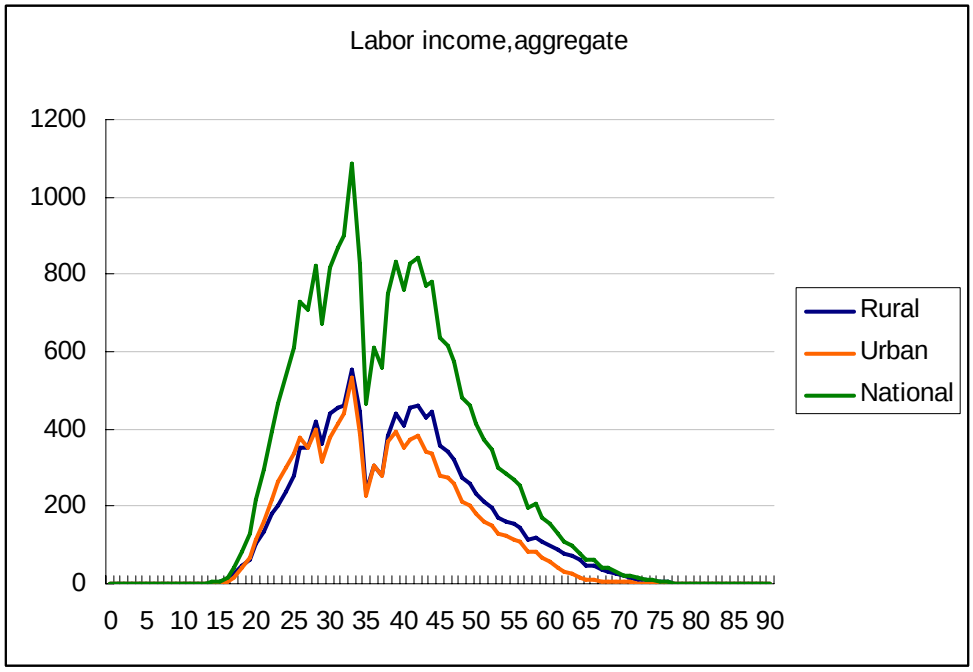
**Figure 26 Share of aggregate earrings from youth (20- ) and elderly (65+), 1995**




We include that the China age-labor income profile in the urban follows the mixture of type I and type II, while the rural profile follows type II. However, though the age-profile of China's rural income profile is similar to that of the U.S, whether they have the same mechanism is an interesting topic to be discussed.

Finally, we compare the aggregate age-labor income profile with that of other countries. Unlike most of other countries, we have a sharp cave at the age 35 years old. It is due to the age distribution of the population. The 35 years old in 1995 are born in 1960, when the birthrate significantly decreased due to the large famine.

**Figure 27 Share of aggregate labor income of selected countries by age, 1995**

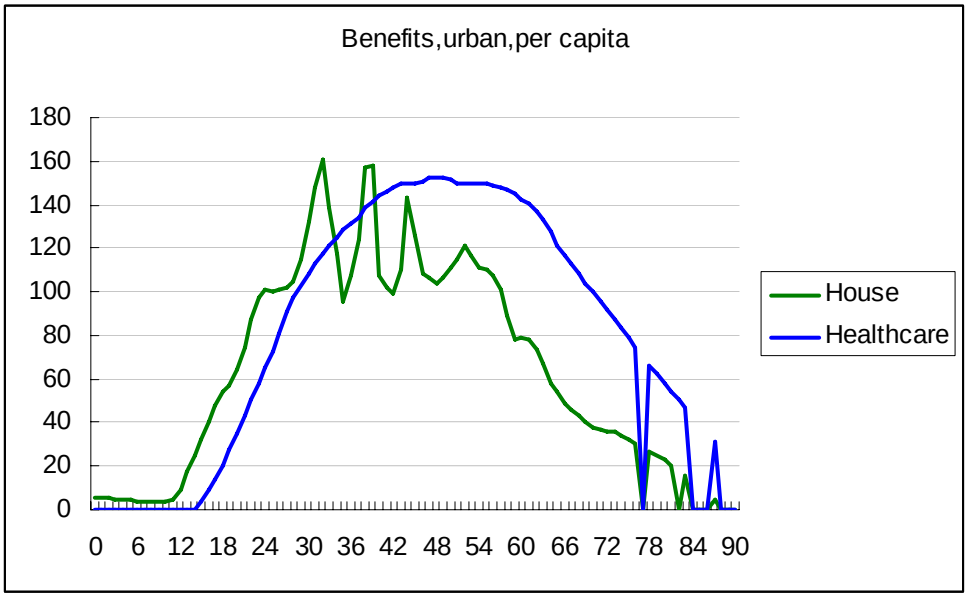



Benefits

We do not have the aggregate control data of the benefits delivered by the employer. So that the age-labor income profile of the urban include the benefits. However, in order not to lose information, we give the age-profiles of the benefits below as Figure 28. Please note that the benefit is only available for the urban population.

The curve is not smooth as the sample of those who have benefits is small, only 2635 individuals have housing benefit and 8088 have healthcare benefits.

**Figure 28 Benefits, urban, per capita, 1995**




## 2.3.3 Life cycle deficit and its components

### 2.3.3.1 Life cycle deficit

Based on our previous result, we can construct the Life-Cycle Deficit. See Figure 29 and 30.

**Figure 29 LCD, per capita, rural, 1995**

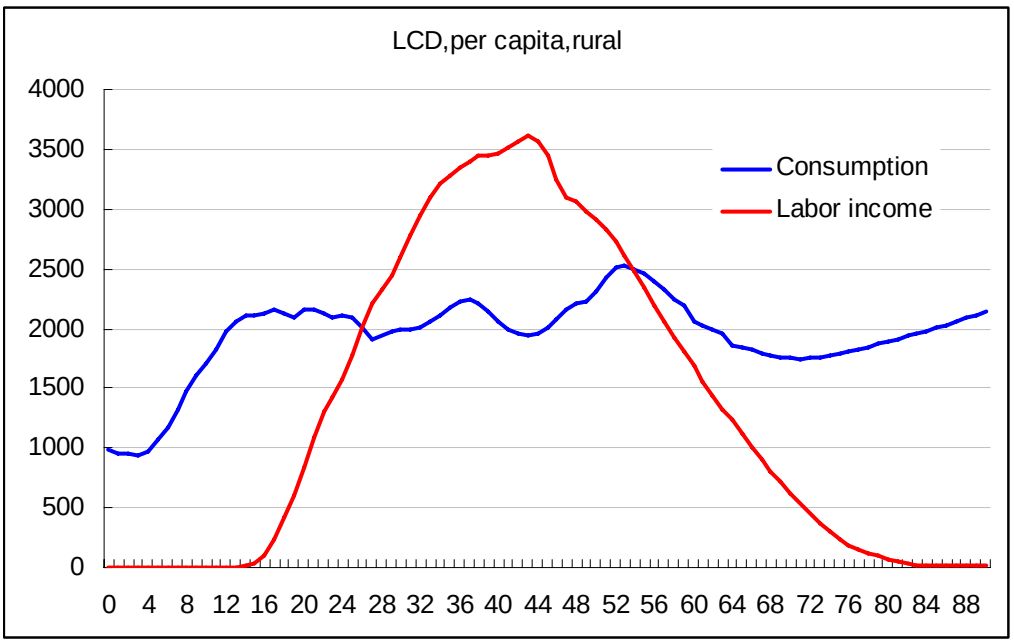
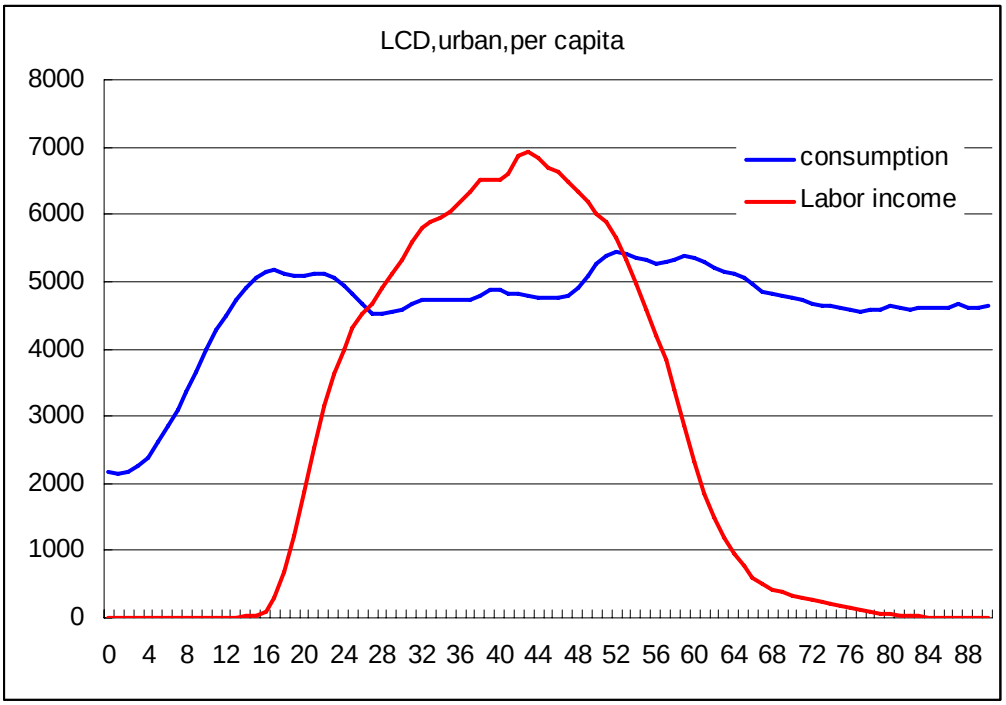


**Figure 30 LCD, per capita, urban, 1995**




What should be noted is that the LCD seems higher than other countries. It is due to the following reason:

1) Devaluation of the labor income. We have mentioned that we estimate aggregate labor income by multiply populations with per capita labor income (which is purely wage in the urban and wage+2/3 self-employed income in the rural) from the Chinese Statistic Yearbook. It will leads to devaluation of the labor income. For the urban, wage is not the only source of labor income, but we have no data on the aggregate benefits (some are included in the "transfer income") and self-enterprises income in the urban area.

For the rural, 2/3 agriculture income is considered labor income, I think that the ratio is lower, as the agriculture production is labor-intensive.

Both the reasons lead to the devaluation of the labor income.

2) Over-estimation of public consumption. We take the government expenditure as public consumption, which will lead to overestimation of public consumption. As the government expenditure is divided into consumption expenditure, investment expenditure and transfer expenditure. We have minus transfer expenditure from the total government expenditure but government investment is still included.

2.3.3.2 Asset-based reallocations

As the aggregate data on assets income is not consistent with the survey data, we simply construct the age-profile of assets income. In our work next step, we will merge the Chinese aggregate data to NTA system and modify the aggregate data more preciously.

Figure 31 shows the age profile of assets income, public transfer (including pensions, price subsidy and government relief) and inter-household transfer (which include the transfer for raising the elderly, donation, and income from selling assets).

**Figure 31 Age profile of assets income and transfer income, urban, per capita, 1995**

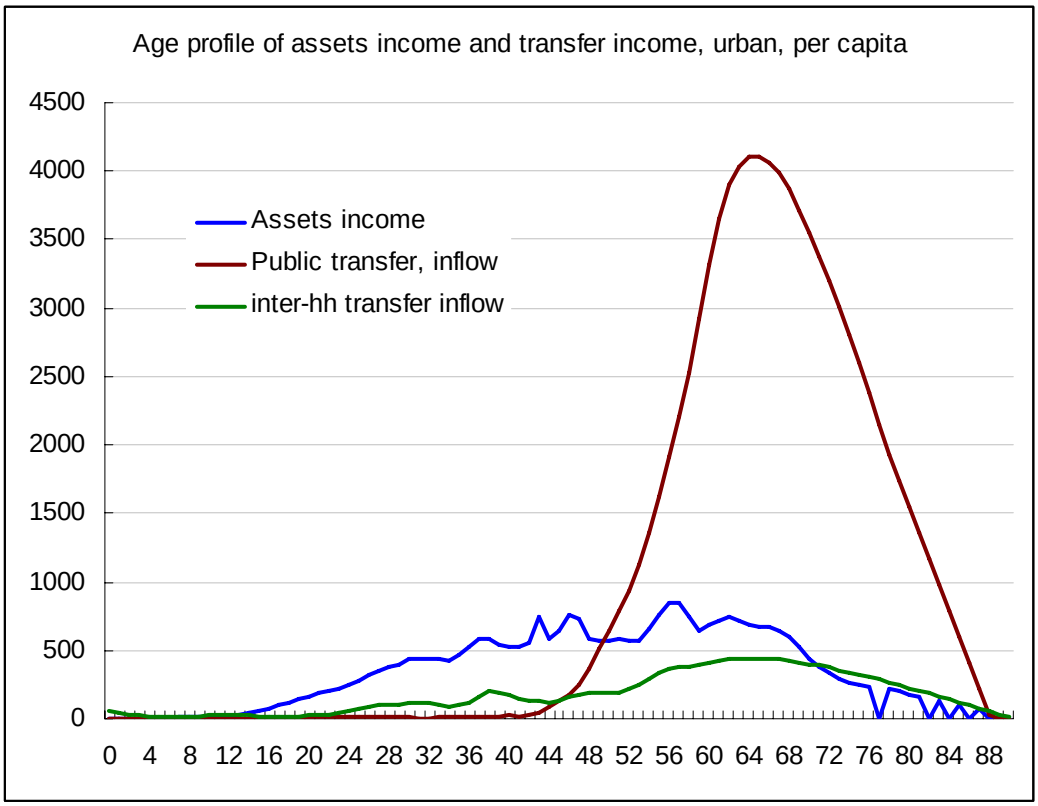



Figure 32 shows the age profile of the asset income (including interest income, dividend and income from renting or selling the farmland) of the rural. Figure 33 shows the inter-house transfer (which is mainly donation, including the transfer for raising the elderly and the children)

**Figure 32 Asset incomes, rural, per capita, 1995**

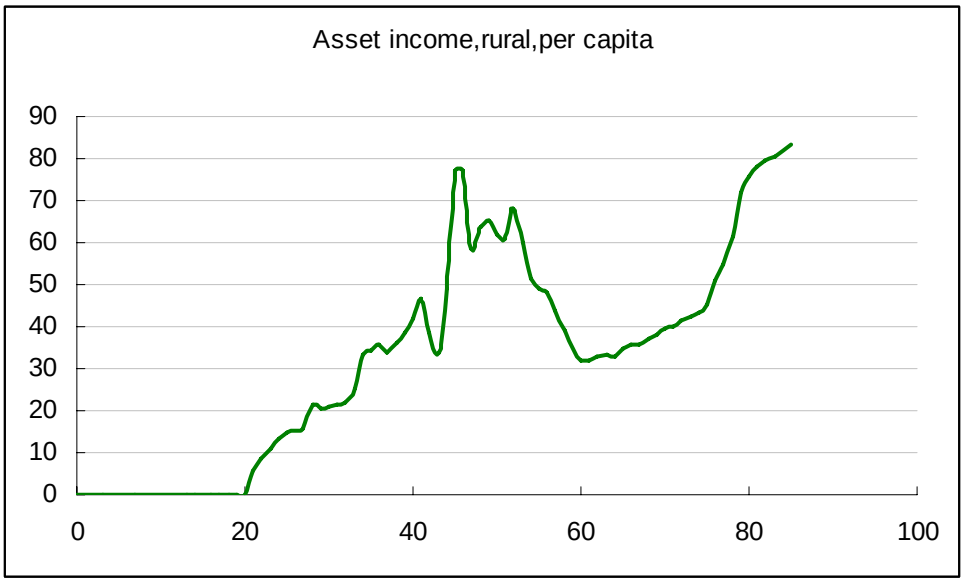
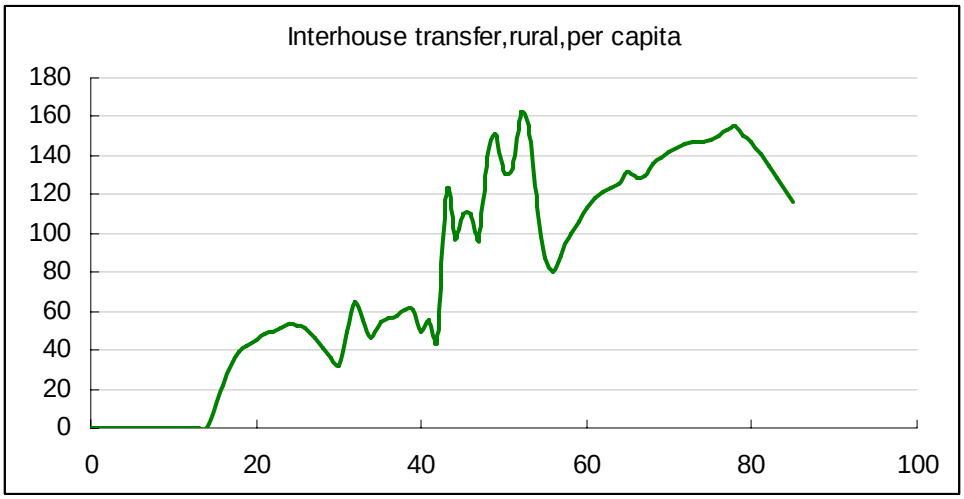



**Figure 33 Inter-house transfers, rural, per capita, 1995**




## 2.4 Problems Encounter and future plan

### 2.4.1 New data source

We are in the progress to get the CHIP2002 data. We will continue research on CHIP 95 data and then CHIP2002. The advantages are, firstly, we can do comparison between the two years; secondly, the aggregate data of 2002 is much detailed than 1995.

We are sure that the CHIP95 and CHIP2002 data will help us to fill the most blanks of the NTA table.

2.4.2 The adaptability of regression method

We are not sure the reason why the regression method gives insignificant and even negative coefficient when used to estimate age-health or age-other consumption profile. We will more deeply check the data and discuss the adaptability of regression method.

2.4.3 How to separate government expenditures in terms of urban and rural

In statistical yearbook, the government expenditure is reported at the nation level and not divided to the rural and urban. We plan to look for some ways to estimate the distribution and effect of government expenditures: How much is spent on the rural area and how much on the urban? Maybe some empirical studies based on micro data (such as the utilization rate to public instructions) are necessary.

2.4.4 Separation of government expenditures in terms of consumption and investment

In statistical yearbook, the government expenditure is classified according to the sector it targeted and not separated into consumption, investment and transfer. We will review public finance literatures to find the method to separate government expenditure.

## 2.5 Future plan

Our future research items include:
(1) Complete the estimation using CHIP95 data and make full estimation with CHIP2002 data to get most of the age profiles required by NTA Account.
(2) Construct methodology to separate government expenditure to the urban and rural.
(3) Estimate and discuss the difference and transfers across the urban and rural.
(4) Investigate the reason why Chinese elderly consumes relatively less healthcare expenditure. The NAPS data is full of health indexes, which may help us a lot.
(5) Discuss the role of migration in terms of the NTA Account.

# Appendix Basic results of the year 2002

## A.1 Data sources

For the private account, what we applied before NTA workshop II are (1) Income and Expenditure Survey (IES2003) conducted by the Bureau of Statistic and the China Social Science Academy launched such a survey to investigate peoples living status in China. (2) National Health Service Survey (NHSS2003), Every 5 years, the Ministry of Health launches a health service survey to see the health status and health resources in China. The latest one is in year 2003; (3) Rural Household Income Survey (EHIS2003), The Ministry of Agriculture has an annual survey for rural people. The China Center for Economic Research co-organized the survey in 2003 with the MOA. But it lacks of consumption information; (4) National Aged Population Survey (NAPS2004) conducted in 2005. Information concerning the aged population's health and economic status are reported. More luckily, the survey also includes information concerning their adult child, including income and expenditure, which can be used as household survey data. We use the data to estimate the age profile of expenditure on healthcare, education and others for the urban area and the intra household transfer data.

These data bases are fragmental and not consistent. For example, in the NAPS2004 data, the youngest adult child of the surveyed old is 35 years old, without any individuals aged below 35, which leads to obvious bias when the date is applied to estimate the age-profile of the consumption and labor income. For another example, we just estimate the age-profiles of different type of expenditure by different data base: health expenditure from one data base while education expenditure from another data base, before merging them together. Such methods will lead to bias and inconsistency.

## A.2 Public Consumption

The National Income Account of China reports total amount rather than detailed information concerning component of government consumption, so we firstly distribute government consumption according to the structure of government expenditure, and assume that the ratio of government consumption to government investment is constant across components. While doing so, Government fixed capital formation, interest payment are excluded from government expenditure.

Public education is distributed by the budgetary expenditure of school at different level. Estimate the student number at different level by age (using the enrollment at different level by age from the census data) expenditure for supporting agricultural are distributed among rural populations in proportion to labor income.

The public healthcare expenditure is distributed in proportion to the private healthcare expenditure spent in the hospital. In China, government healthcare expenditure is subsidized directly to hospitals, so we assume those who go to hospitals receive the government subsidy in proportion to their spending in the hospital. As generally speaking, the more the patient spent, the more labor force, equipment or medicine he or she consumes.

Other Public consumptions are allocated according to the target of each component of public expenditure. For example, expenditure on city construction are distributed averagely among the urban population; for another example, expenditure for supporting agricultural R&D are distributed among rural populations in proportion to labor income.

Main results concerning the public consumption are graphed in Figure A1 and A2.

**Figure A1 Public consumption, per capita, rural, 2002**

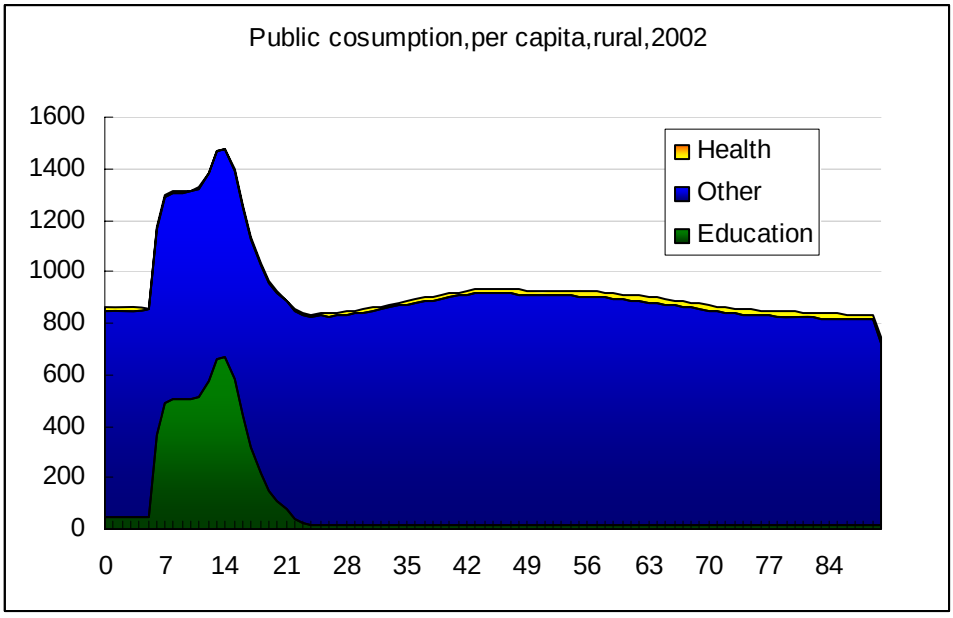
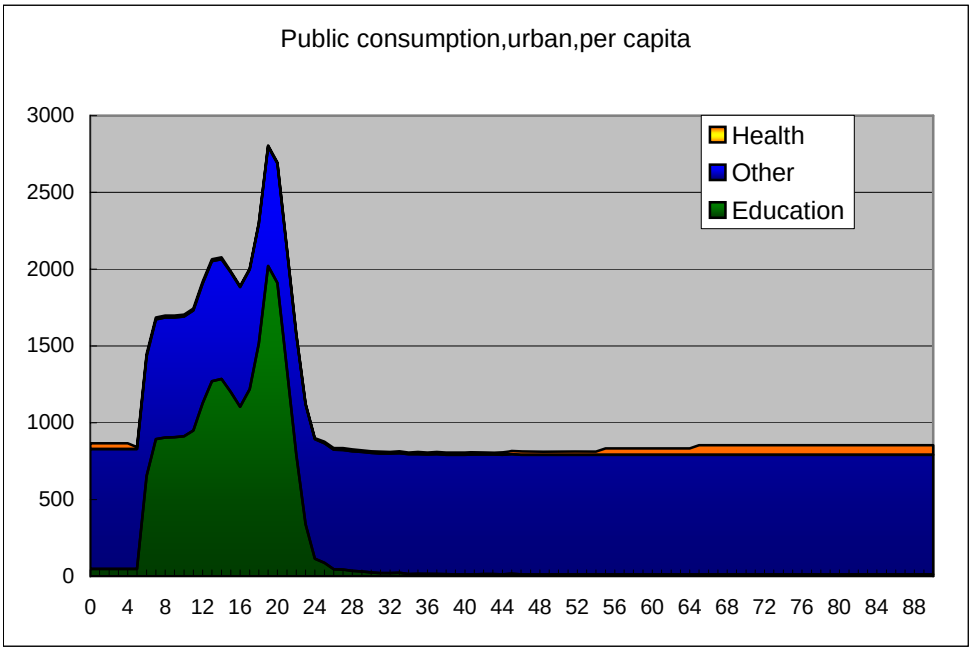



**Figure A2 Public consumption, urban, per capita, 2002**




## A.3 Private Consumption

As the shortage of the data, we make some modification of the methodologies.

1. The data are not so ideal. The variable concerning household expenditure include (1)disposal income (2)consumption expenditure per month (3) expenditure on food ,cloth, community service and others ,but not expenditure on health and education. Only those who answer the question" which of the following is the main expenditure in your family last year" as education or healthcare reported the total amount spent on the very item. So those who reported healthcare expenditure is in lack of education expenditure and vise visa. So the estimation on the individual health and education expenditure may bias up.

So we take the following steps (1) select those who report expenditure on one of education or healthcare service. (2) Less the expenditure on education or healthcare from the component of consumption expenditures not included in the other items such as food, cloth, community service… (3) Regress the expenditure on the # of house member at each age (education) or age group to get relatively weight for each age.

2. The survey does not report work stats for each household member, so we assume all members aged 6 to 25 are education participators

Main results concerning the private consumption are graphed in the Figure A3 and

Figure A4.

**Figure A3 Private Consumption, rural, per capita, 2002**

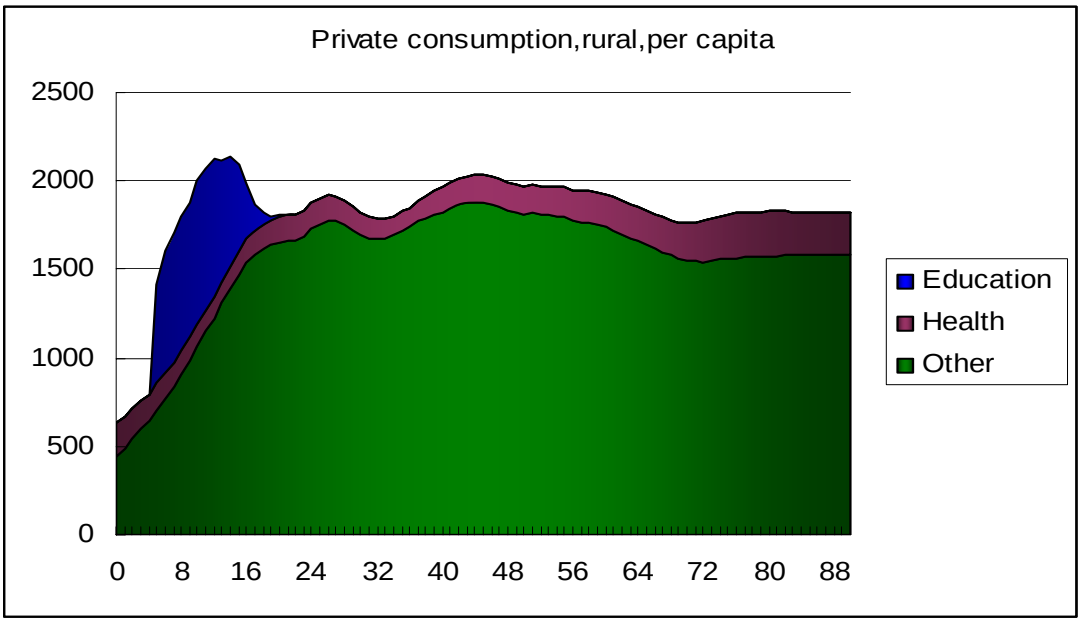
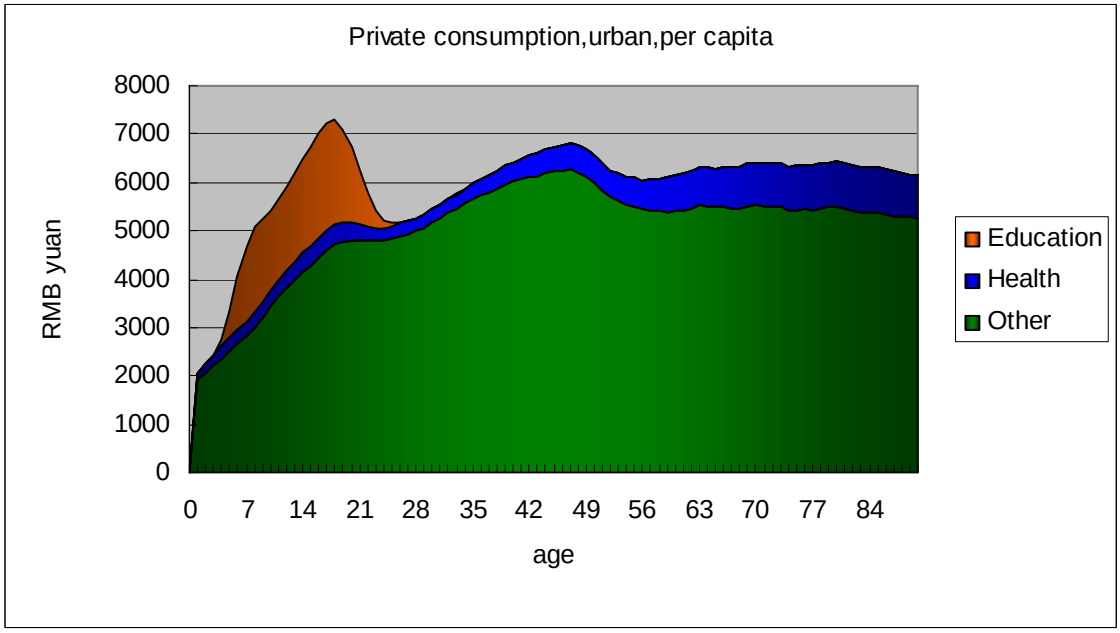



**Figure A4 Private Consumption, urban, per capita, 2002**



## A.4 Labor Income and LCD

For the rural：Income from labor working for a factory or government is regarded as earnings, Total labor income is reported at household rather than individual level, we use regression method to allocate household labor income to the individual.

For the urban: The National Aged Population Survey (NAPS2004) only report the detailed information concerning the investigated aged and one of her/his adult children, as well as the child's spouse. Other house members just report her/his age and sex. So it is difficult to estimate age profile this way.

Two alternative methods are (1) use the age profile of wage income in rural as an alternative; (2) use only the age and labor income of the adult's child to constructed the age profile. However, as the youngest child in the survey is 35 years old, we estimate average wages for those aged 20 to 35 according to the census on average wage for different age groups in China Labor Statistics Yearbook. What we applied is the second method.

Concerning the self-employed income, the aggregate amount of self-employment labor income is reported in National Statistic Yearbook. For the rural area, 2/3 the management income is classified as self-employment labor income. The age profile of labor income is estimated by regression method.

Figure A5 to A8 shows the labor income as well as LCD.

**Figure A5 LCD, urban, per capita, 2002**

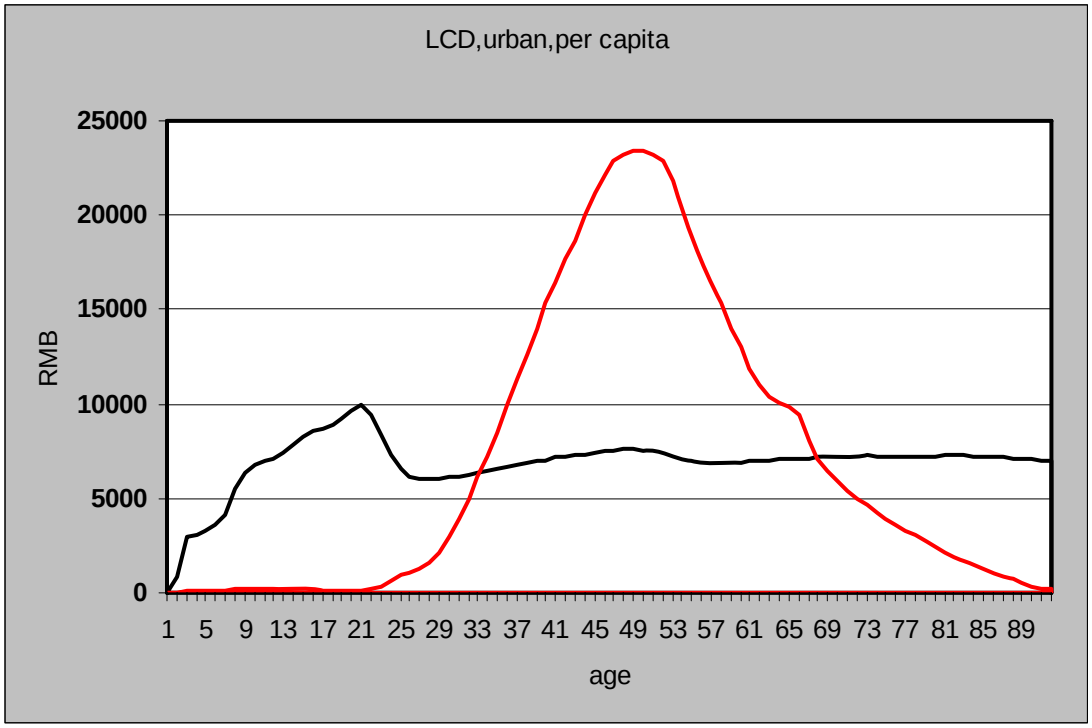



**Figure A6 LCD, urban, aggregate, 2002**

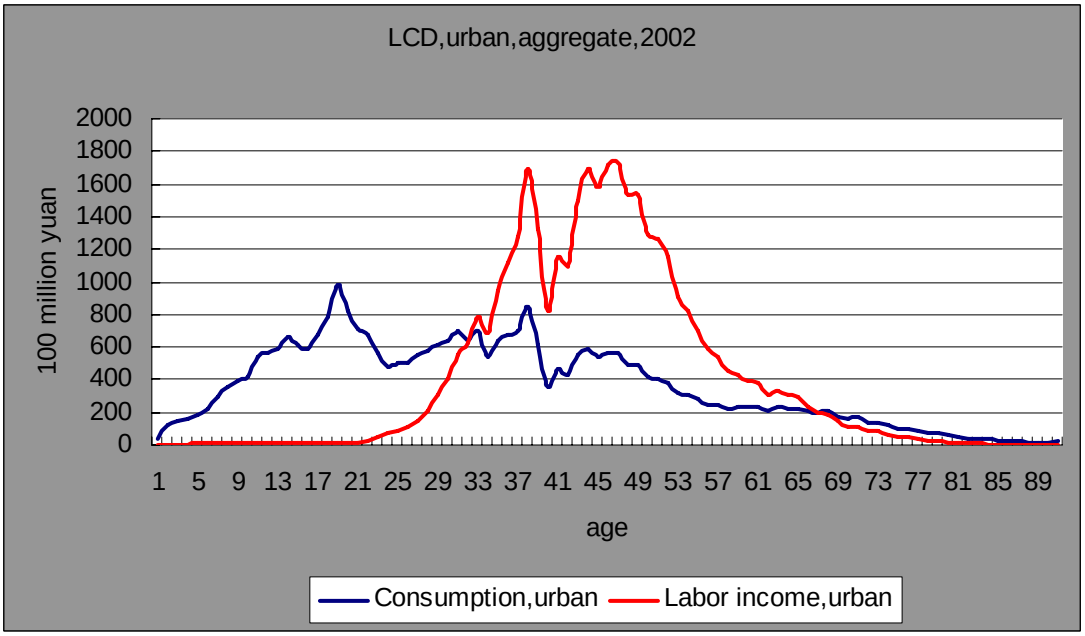



**Figure A7 LCD, rural, per capita, 2002**

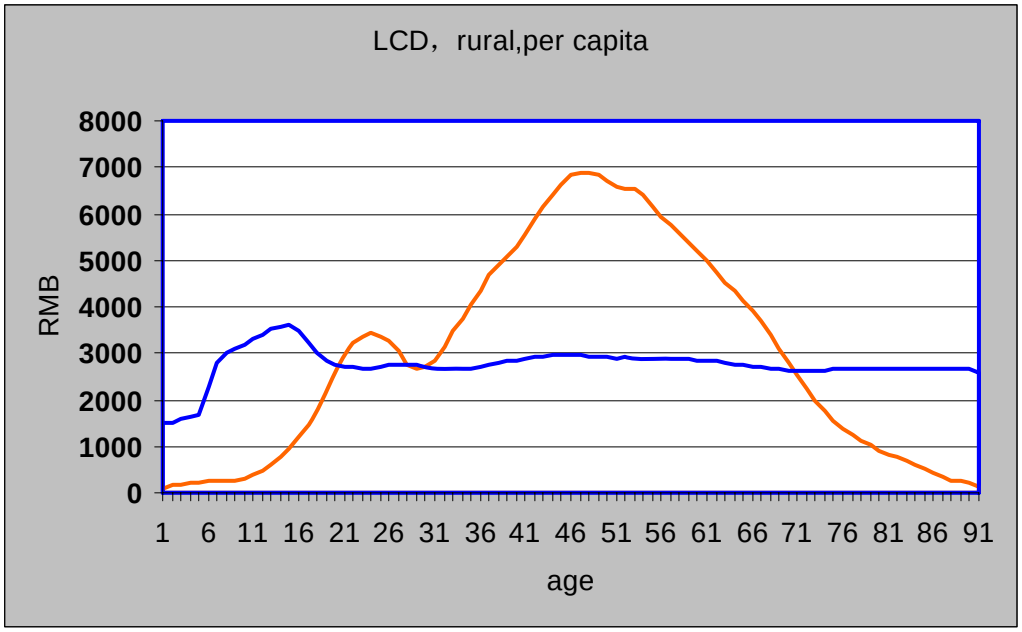
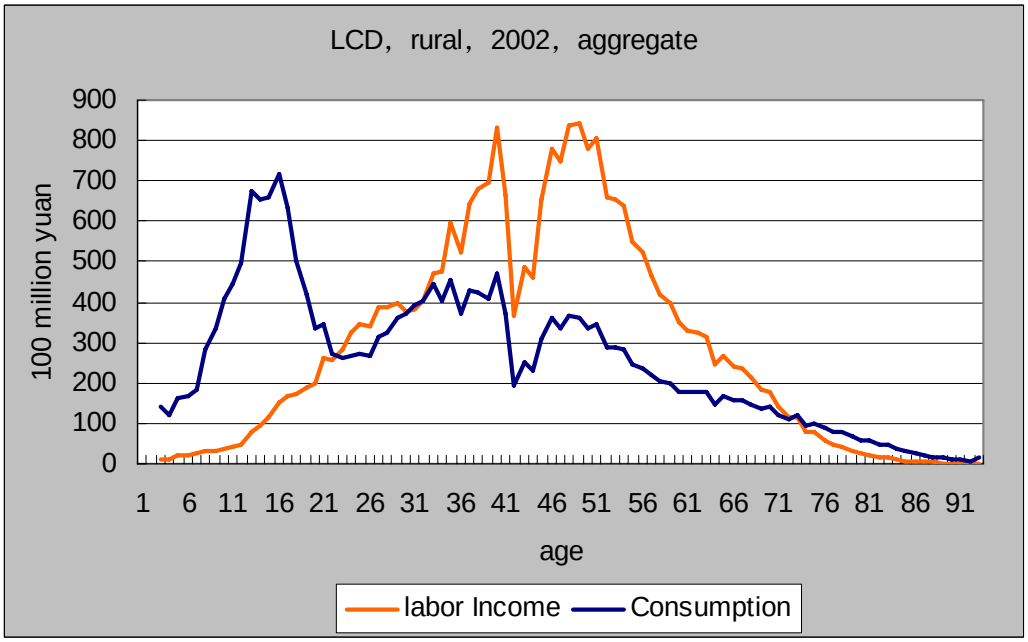



**Figure A8 LCD, rural, aggregate, 2002**




## A.5 Private Transfer

Private transfer (including inter-house transfer and intra-house transfer) are estimated completely following the standard method. Due to the shortage of data sources, we just give the result of the rural in Figure A9 and A10.

**Figure A9 Inter-house transfers, rural, 2002, per capita**

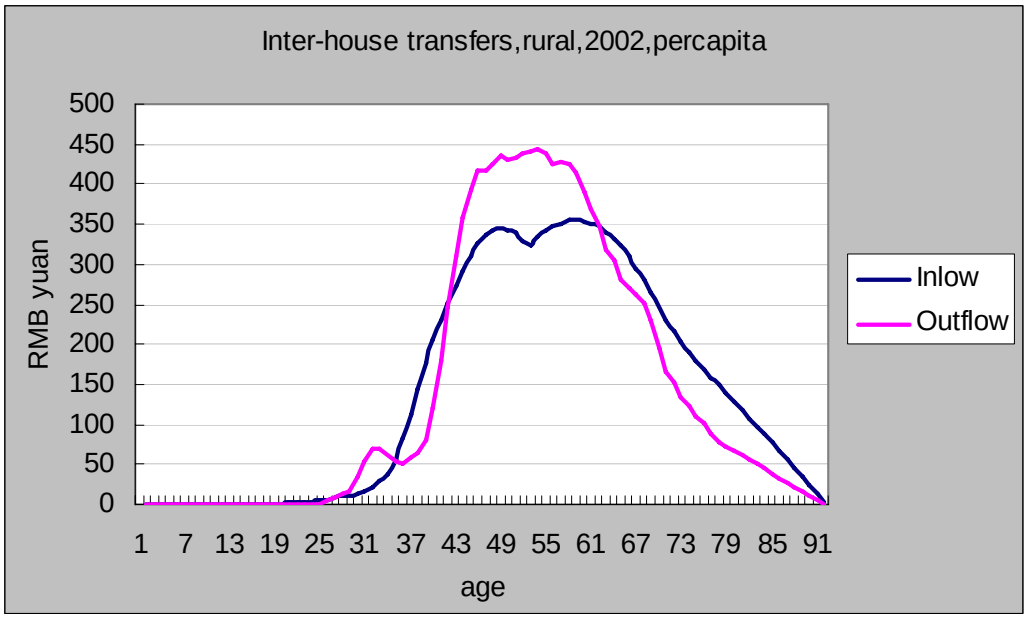
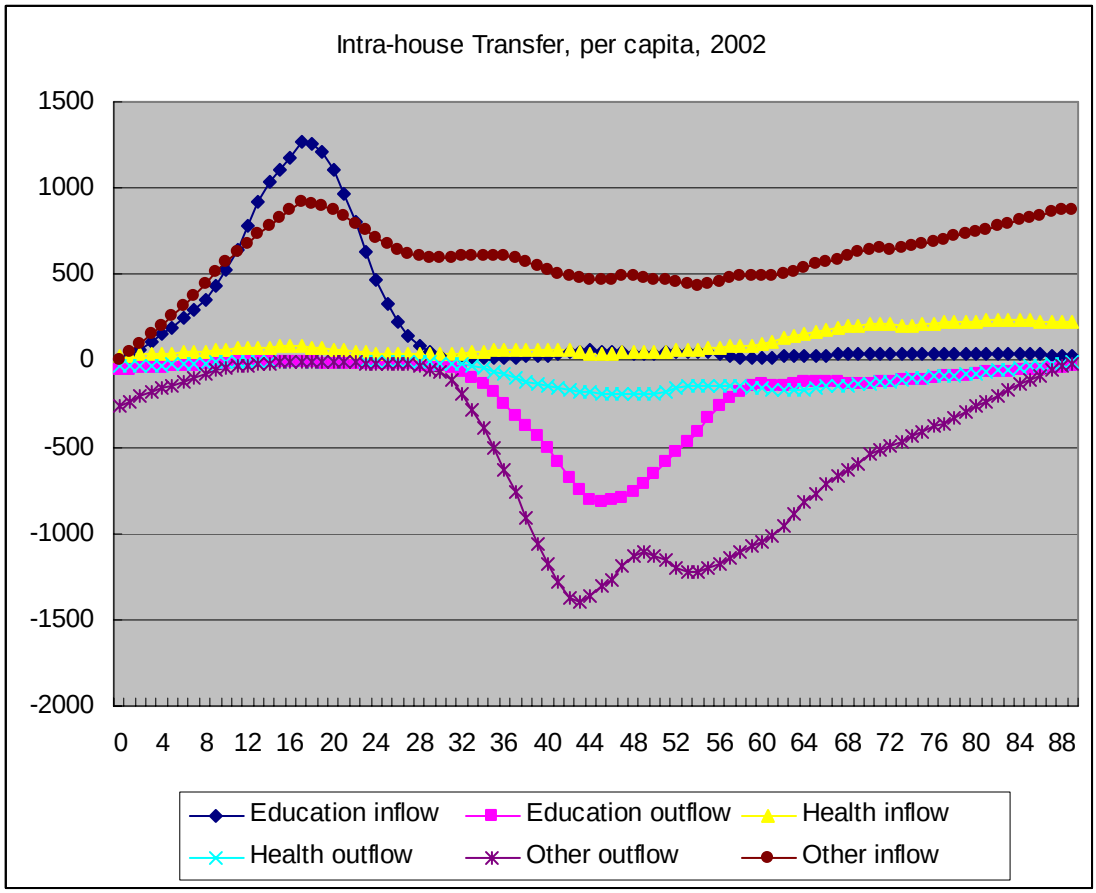



**Figure A10 Intra-house Transfer, per capita, 2002**



## A.6 Assets reallocation and other profiles

We also estimate other profiles such as assets reallocation. However, as the constraint of the sample size, our result is not solid. Here we make some notes on the methodology of estimating these profiles as the reference for our future work.

Capital income

Data source: Income and Expenditure Survey (IES2003)

Rural Household Income Survey (EHIS2003)

Capital income data are available for household level, we take steps to estimate

(1) Capital income from the household income and expenditure survey is assigned to the household head； All other household members are assigned a value of zero;

(2) The variable is tabulated by age using sample weights to obtain the per capita age profile.

(3) The per capita profiles are smoothed.

(4) The smoothed per capita profiles are multiplied by the population, cumulated, and compared to the aggregate control totals. The per capita and aggregate profiles are adjusted proportionately to match the control total. The unsmoothed, smoothed, and aggregate age profiles are uploaded to the data base with documentation.

Public Transfers inflow

Data source: China Statistical Yearbook

Use the structure of government budgetary expenditure to estimate the government consumption expenditure.

Similar to the public consumption sector, the total education expenditure is distributed by the budgetary expenditure of school at different level. Estimate the student number at different level by age (using the enrollment at different level by age from the census data) expenditure for supporting agricultural are distributed among rural populations in proportion to labor income.

Public Healthcare transfer is distributed in proportion to the individual health consumption and Other Public transfers are allocated according to the target of each

component of public expenditure.

Public Transfers, outflow

Data source: Public Finance Statistical Yearbook, China Population census 2000.

Taxes are classified by different payers and distributed to these payers.

Notes

(1) For the value added tax, 1/3 is distributed to by the age profile of non labor income and 2/3 is distributed by the age profile of labor income.

(2) Consumption tax and tariff in proportion with individual other consumption

(3) Value added Tax are firstly separated to different sectors, then distributed to by the age profile of non labor income and 2/3 is distributed by the age profile of labor income.

(4) Income taxes are distributed in proportion with wage income

(5) Agriculture taxes are distributed according to the self-employment income among rural populations

(6) Corporation taxes are distributed in proportion with wage income for each industry sectors

(7) In lake of enough data, other taxes are distributed averagely per capita.

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