北京大学国家发展研究院
National School of Development

Challenges of Population Aging in China

Evidence from the National Baseline Survey of the
China Health and Retirement Longitudinal Study (CHARLS)

CHARLS Research Team
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Contents

Introduction

China has the largest elderly population in the world and also one of the most rapidly aging societies in the world, which will pose great challenges to sustainable economic and social development. According to the National Bureau of Statistics, China had about 185 million persons aged 60 and over at the end of 2011.[I] As seen in Figure 1.1, It is projected that the share of the population aged 60 and over, which we define as elderly in this report, will increase dramatically from about 12% in 2010 to 34% in 2050.[II] Due to strict family planning policies in the past and increasing longevity, China confronts rapid population aging at a relatively early stage of her economic development, which limits the amount of financial resources available for supporting the elderly. Maintaining the well-being of the elderly is made even more challenging because due to sharp reductions in fertility the future elderly will have fewer children to support them and children are increasingly moving away from home to seek economic opportunities.

> *Responding to this challenge, the Chinese government has taken robust actions to provide social protection to the elderly.*

In recent years, it has significantly expanded the coverage of public pension and health insurance programs, strengthened social safety net programs such as the Minimum Living Standard Guarantee Program, expanded various programs and services for the elderly, and raised social awareness about the need to assist the elderly. To evaluate the impact of these initiatives, to identify new problems and improve policies in a timely manner, and to study the role of the family and its interplay with government programs, all require high quality, multi-dimensional data on China's older population that is collected consistently over time.

Figure 1.1. Elderly Share of Population in China, 1950 to 2050
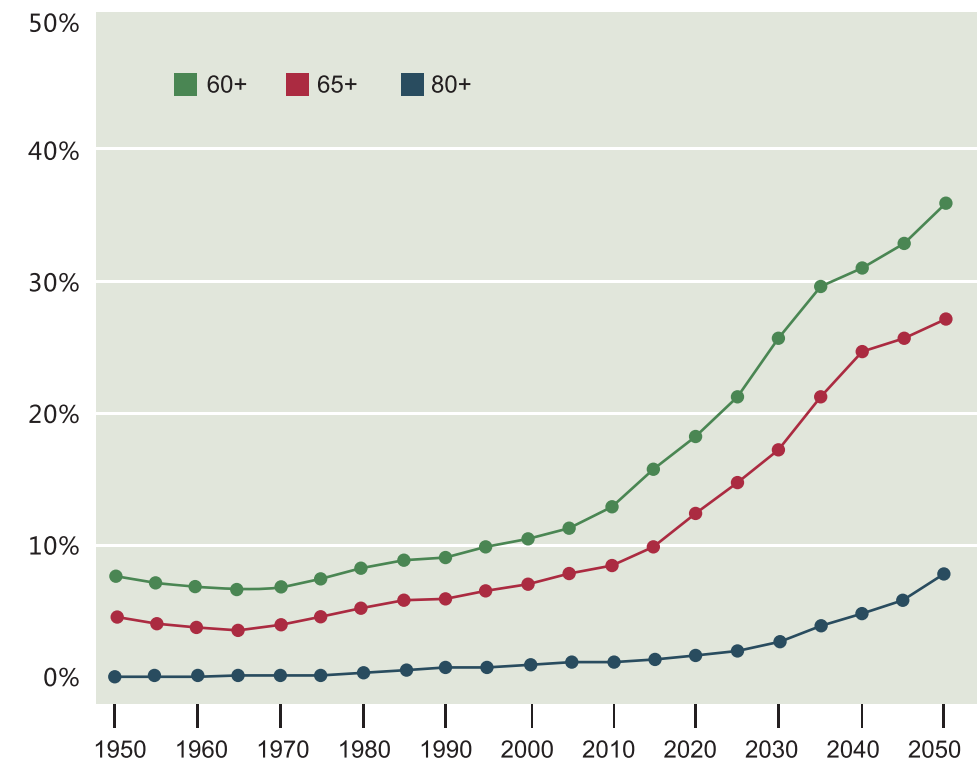

Source: UN, 2010 Medium variant

Although many worry that population aging will negatively impact economic growth, the relationship between the two is not so clear and depends crucially on whether healthy aging can be achieved and whether economic policy can accommodate the needs of an aging society. For example, an aging but healthy population can reduce care needs and maintain high levels of productivity. If policy can support efforts by the elderly to migrate to where children live, then children can remain economically active while caring for their parents. Data are needed to assess the health situation of the elderly, the labor market attachment of the elderly themselves and their children, and the impact of policies governing retirement and population migration.

The China Health and Retirement Longitudinal Study (CHARLS) is designed to meet data needs for the study of population aging. The goal of this report is to present the main descriptive findings from the CHARLS 2011-12 national baseline survey. Section 2 provides an introduction to the CHARLS survey and data. Subsequent sections present the main findings in the areas of health status, medical care, material well-being, family support, and work and retirement. Given the unprecedented detail of the information collected by CHARLS, which is nationally representative, it is hoped that this information will help policy-makers, researchers, and the general public become better informed about the situation of China's elderly population and assist all parties in designing strategies that can improve the well-being of China's older population.

The CHARLS Survey

CHARLS provides a unique, high quality dataset to support the scientific analysis of aging issues in China.

It joins a family of well-established international aging studies, including the Health and Retirement Study (HRS) in the US, the England Longitudinal Study of Ageing (ELSA), and the Survey of Health, Ageing, and Retirement in Europe (SHARE) that share several key features that make them the most influential studies in the world on aging issues. First, the surveys combine extensive socioeconomic data with high quality data on physical and psychological health (and cognition). Second, they are longitudinal studies including pre-retirement cohorts that follow the same individuals over many years. Third, they are well-documented, publicly accessible datasets that are stripped of confidential information and can be utilized by researchers worldwide. Asian countries such as India, Indonesia, Japan, Korea, and Thailand, are also carrying out or are about to carry out similar surveys which will facilitate comparative studies in the Pan-Asian context.
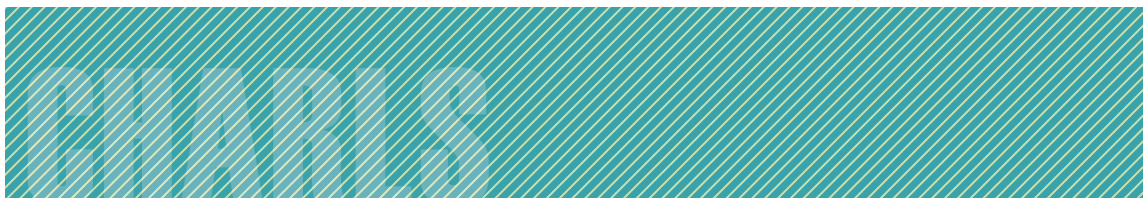
> *The CHARLS project is directed by the National School of Development of Peking University and run by the University's Institute for Social Science Survey.*

The project is led by an international team of first rate academic economists and epidemiologists, with guidance provided by domestic and international advisory boards that include leading aging experts from both inside and outside of China. It is financially supported by major grants from the Division of Behavioral and Social Research of the National Institute on Aging (NIA) of the National Institutes of Health in the US, the National Natural Science Foundation of China, Peking University and the World Bank. A pilot panel survey of 2,685 individuals living in 1,570 households was successfully completed in 2008 and 2012 in Gansu and Zhejiang Provinces.

The CHARLS national baseline survey was conducted in 2011-12. It is a nationally representative survey that included successful surveys of one person per household who was 45 years of age or older and their spouses (totaling 17,708 individuals) living in 10,287 households in 450 villages/urban communities in 150 counties/districts in 28 of China's 30 provinces excluding Tibet (Table 2.1). Figure 2.1 shows the location of CHARLS sample counties and districts. The response rate for the survey was over 80% (94% in rural areas and 69% in urban areas). The survey followed exacting protocols for sampling, conducting the field surveys, and checking and verifying the quality of the data (see Box for additional details, as well as the CHARLS User's Guide[III].)

Table 2.1. The CHARLS Sample

Individuals	17,708
Households	10,257
Villages/communities	450
Counties/districts	150
Provinces	28

Box: Quality control of the CHARLS survey

The quality of the CHARLS data is guaranteed through strict quality control at all stages of the survey, including sampling, interviewer training, and field protocols. A stratified (by per capita GDP of urban districts and rural counties) multi-stage (county/district-village/community-household) PPS random sampling strategy was adopted. To minimize human manipulation, each stage of the sampling was carried out by project researchers using computer programs allowing no possibility for sample replacement. In light of the outdatedness of household listings at the village/community level due to population migration, CHARLS designed a mapping/listing software (Charls-GIS) that makes use of Google-earth map images to list all dwelling units in all residential buildings to create sampling frames. Interviewers were extensively trained using DVDs to standardize training content. A series of measures were adopted to monitor the work of field interviewers. As a result, after applying sampling weights created out of the sampling procedure, the CHARLS sample demographics mimics closely that of population census in 2010. Thus the CHARLS data well represents the national population.

Figure 2.1. Distribution of CHARLS Sample Counties and Districts

county population
- 2,091,869
- 1,050,000
- 40,674
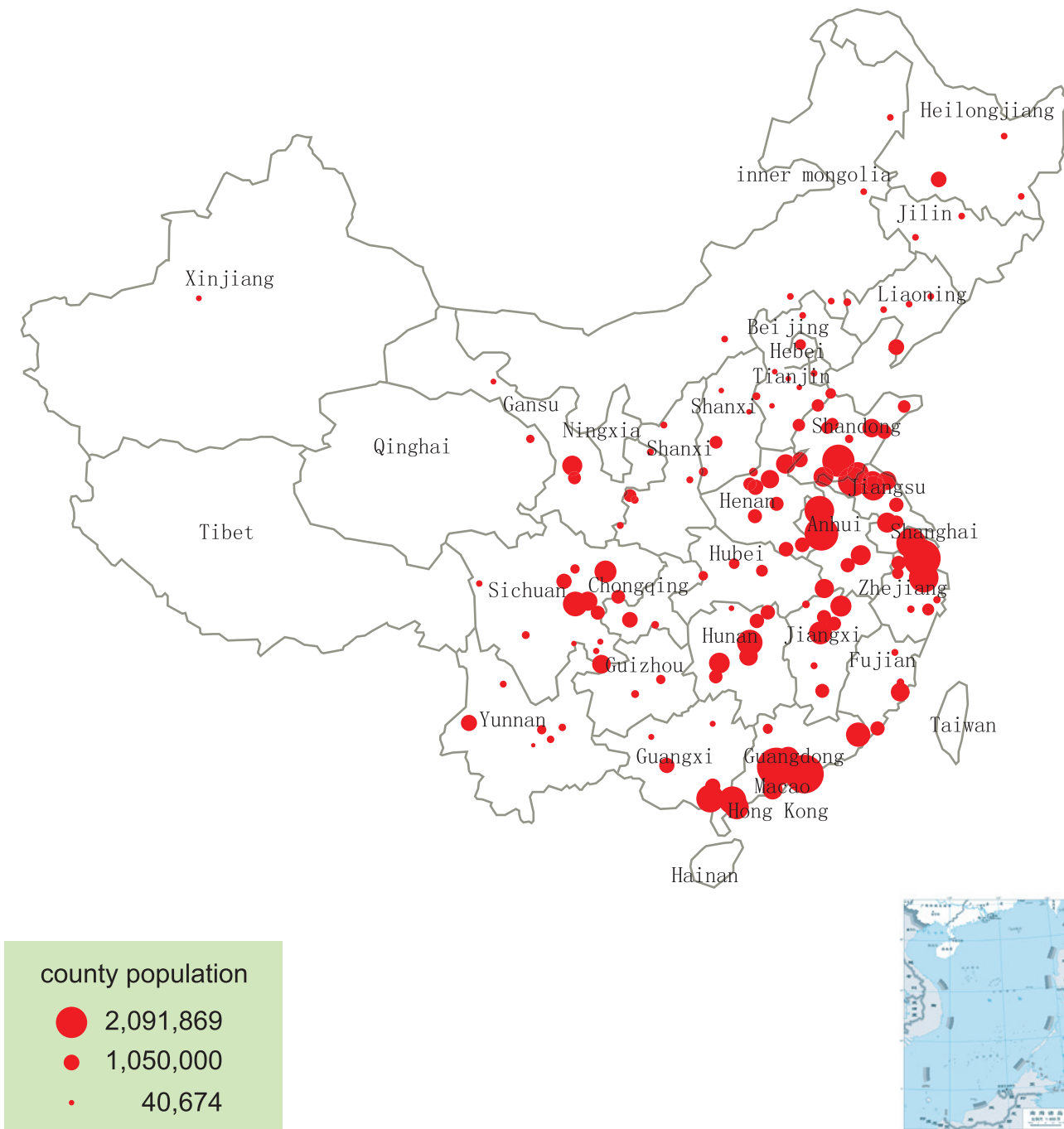
A description of the sample, broken down by age, gender, hukou, and residence is provided in Table 2.2. Just less than 45% of the sample are elderly (60+), 47.6% are men, 28.7% have urban hukou, and 50.1% live in urban areas, as defined by the National Bureau of Statistics based on population density. Sampling weights are used to ensure that all figures in this report are representative of the population of China (excluding Tibet).

Table 2.2: CHARLS Sample Description (%)

Age Group	Total	Gender		Hukou		Residence	
		Male	Female	Urban	Rural	Urban	Rural
-49	23.3	21.1	25.2	21.8	23.9	24.6	21.9
50-54	14.5	14.5	14.5	12.8	15.1	14.5	14.5
55-59	19.2	19.9	18.6	19.3	19.1	19.2	19.2
60-64	15.0	15.6	14.4	14.3	15.2	14.2	15.8
65-69	9.7	10.5	9.0	9.9	9.7	8.7	10.7
70-74	7.9	8.5	7.3	9.9	7.1	8.1	7.6
75-79	5.5	5.6	5.3	6.7	4.9	5.6	5.3
80+	5.1	4.4	5.8	5.3	5.0	5.0	5.2
All	100.0	47.6	52.4	28.7	71.3	50.1	49.9

Table 2.3 describes educational attainment levels of the population broken down by age group, gender, and hukou type. The differences across groups are striking. Among the elderly, only 44.7% completed primary school and only 9.4% completed high school. The completion rates are much higher for those aged 45-59; 67.1% completed primary school and 19.9% completed high school. There are also large differences between men and women and between those with rural and urban hukou. Among women aged 45+, 39.1% never attended school, compared to just 11.8% for men. Among all those aged 45+ with rural hukou, just 47.6% completed primary school, 6.0% completed high school, and only 0.2% completed college or above. In contrast, among those with urban hukou, 81.0% completed primary school, 37.8% completed high school, and 11.0% completed college or above.

Table 2.3: Educational Attainment of Older Population (%)

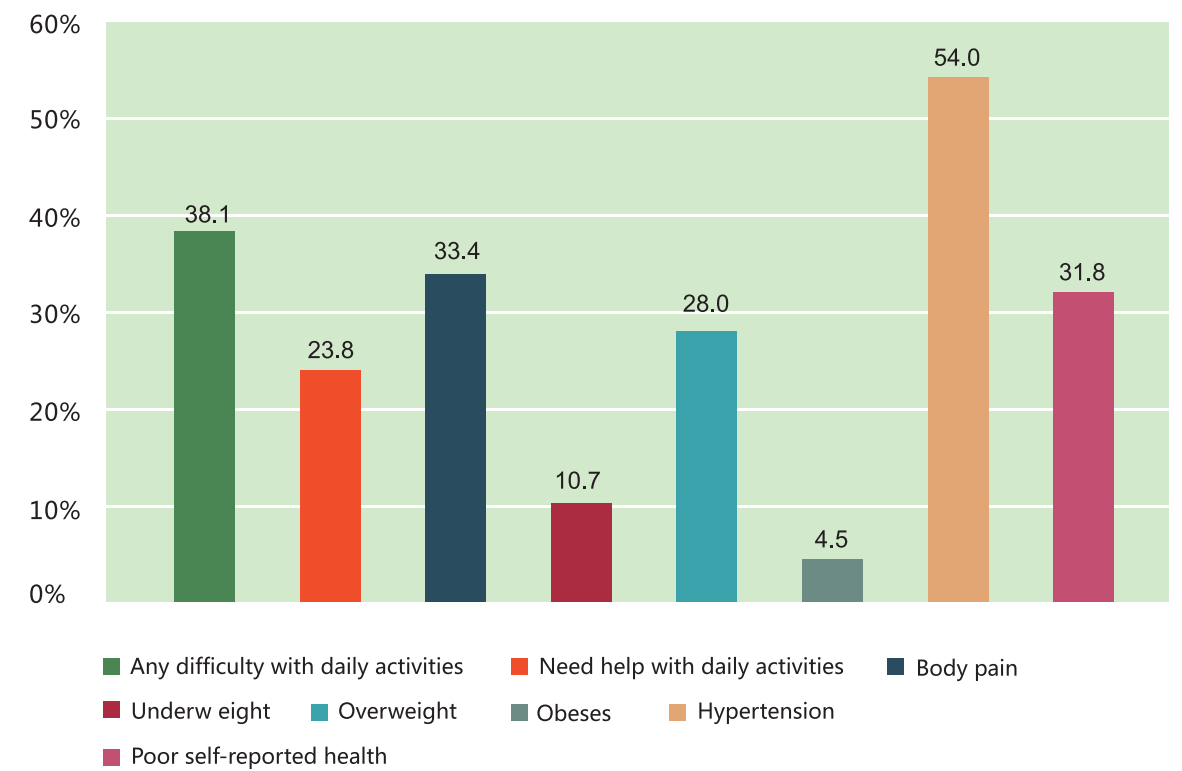| Educational level	Age		Gender		Hukou	
	45-59	60+	Male	Female	Urban	Rural
No schooling	17.9	36.5	11.8	39.1	9.4	32.8
Did not finish primary	15.0	18.8	17.0	16.3	9.6	19.6
Finished primary	19.2	23.3	25.0	17.3	17.6	22.4
Finished middle school	28.0	12.0	26.3	16.1	25.6	19.2
Finished high school	15.9	6.8	15.4	8.8	26.8	5.8
Finished college and above	4.0	2.6	4.5	2.4	11.0	0.2

Health of the Elderly

This section presents the main findings of the CHARLS national baseline survey (2011-12) on different dimensions of physical and psychological health.

A large fraction of the elderly have physical health limitations. Figure 3.1.1 summarizes physical health outcomes for the elderly, defined as those aged 60 and above. According to the CHARLS data, 31.8% reported having poor health[IV], 38.1% of the elderly reported a disability, defined as having any difficulty completing basic daily activities on their own;[V] 23.8% reported requiring assistance with basic daily activities; and 33.4% experienced bodily pain. Physical exams revealed that 10.7% of the elderly were underweight; 28.0% were overweight, of which 4.5% were obesebased on WHO standards;[VI] and 54.0% had hypertension. These numbers translate to 44.0 million elderly needing assistance with basic daily activities, 61.8 million experiencing bodily pain, and 99.9 million having hypertension. Thus, a significant number of elderly suffer from physical health problems. This creates great demand for medical care and support to complete basic activities of daily life.

Figure 3.1.1. Physical Health Status of the Elderly, Full Sample

Legend:
- Any difficulty with daily activities
- Need help with daily activities
- Body pain
- Underw eight
- Overweight
- Obeses
- Hypertension
- Poor self-reported health

Women are in poorer health than men across all of the different measures. As seen in Figure 3.1.2, the differences are particularly pronounced for needing help with basic daily activities (27.5% for women compared to 19.8% for men), body pain (39.1% for women compared to 27.5% for men), overweight (31.7% for women and 24.3% for men), and hypertension (58.6% for women and 49.1% for men). That women fare worse than men in health measures is a global phenomenon but the difference seems larger in developing countries. Another interesting puzzle is that although women exhibit worse health status their life expectancy exceeds that of men. CHARLS and sister surveys around the world can assist in explaining these phenomena.

Figure 3.1.2. Physical Health Status of the Elderly, and by Gender
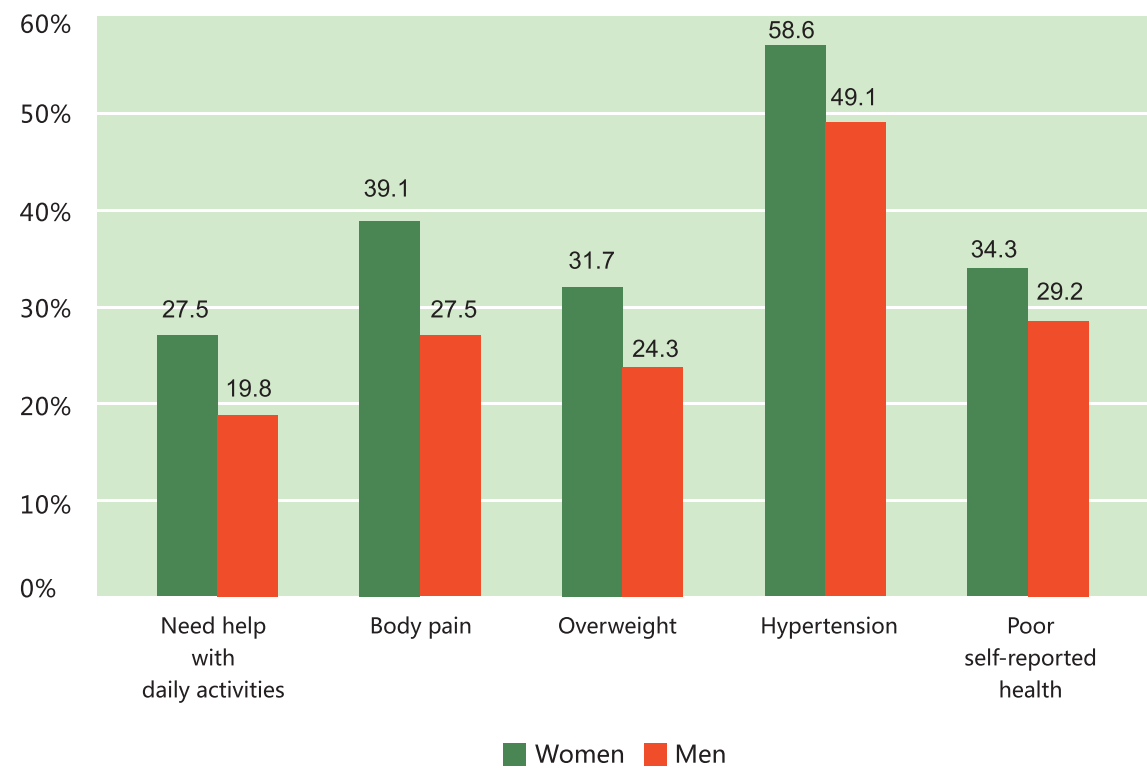
Physical health problems of the elderly increase steeply with age. As seen in Figure 3.2, whereas less than 10% of those in their 40s and early 50s need assistance with daily activities, the percentage rises to over 25% in the late 70s and over 50% for those over 80. This age-disability profile highlights the fact that providing health care to the elderly may become a major challenge for China's rapidly aging society if the health situation does not improve over time. In developed countries, an expansion of healthy life years and a contraction of unhealthy life years have accompanied the process of population aging, which has helped offset the health care costs associated with an aging society.

Figure 3.2. Share of Persons Who Need Help with Daily Activities, by Gender and Age Group
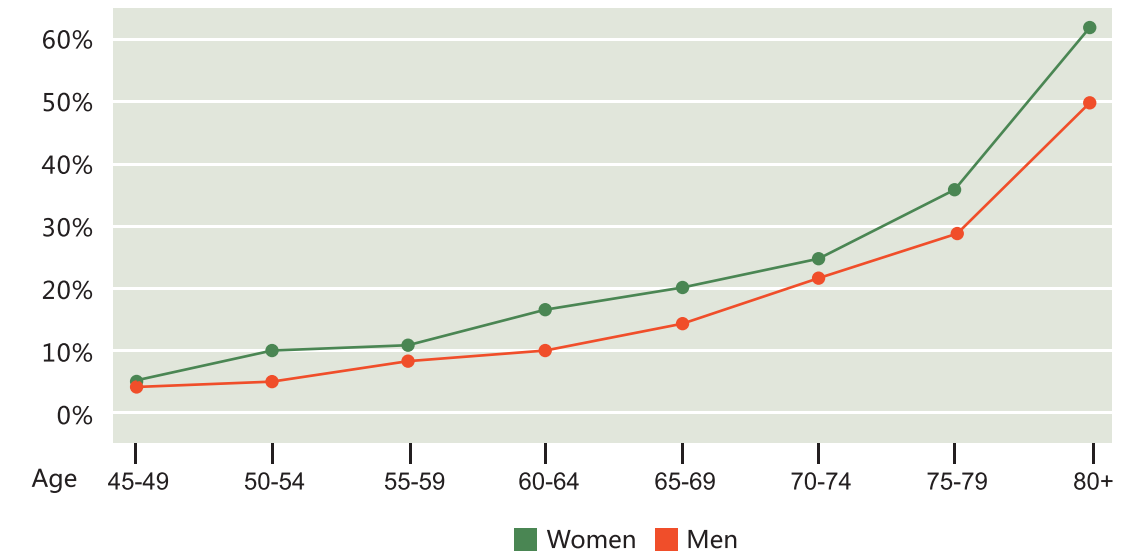
Health limitations are more common among those who are economically deprived and are significant among those who are socially isolated. Figure 3.3 shows that there is a very strong positive relationship between health and wealth; those who have less wealth also have worse health status. As seen in Figure 3.4, the share of the elderly needing help with daily activities is greater among the poor (defined below) (26.2%) than among the nonpoor (22.7%). The positive associations between health and economic status could be due to unequal access to or demand for medical care or reflect the fact that bad health causes poverty. The goal of the recent health sector reforms is to minimize this association by providing more equal access to health care and reduce the out of pocket expenses in the event of catastrophic illnesses. There is evidence that families adjust living arrangement to care for the elderly who need assistance--the share requiring assistance is lower among those living alone (19.0%) than those living with someone else (23.9%). Nevertheless, a significant number of elderly, 3.23 million, requiring care do live alone.

Figure 3.3. Wealth Per Capita and Self-reported Health (Age 45+)
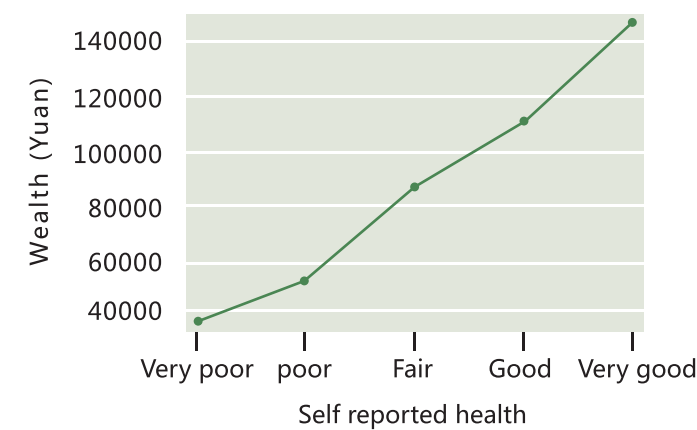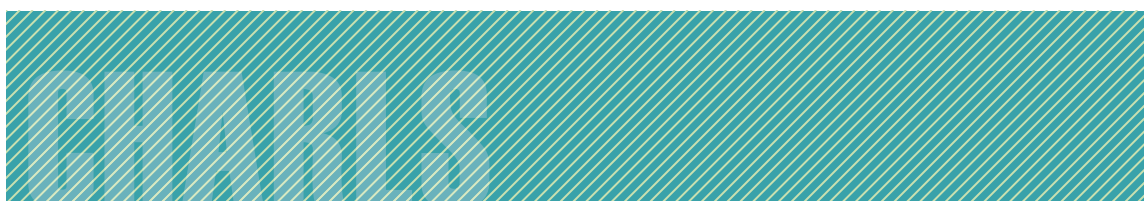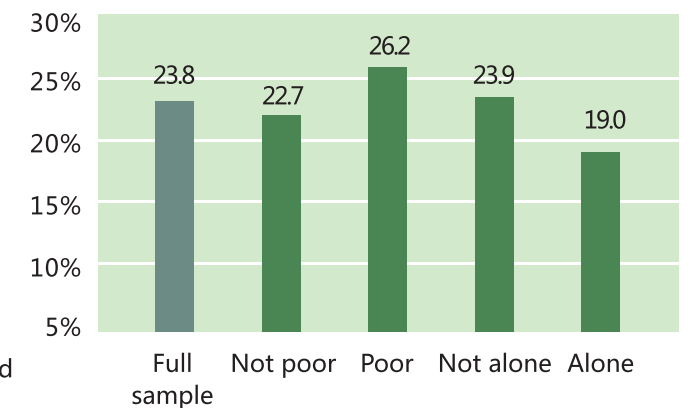

Figure 3.4. Share of Elderly Who Need Help with Daily Activities, by Poverty Status and Whether Living Alone

Cognition declines rapidly with age in China and a large gender gap exists in cognitive ability especially among older people. These patterns are apparent in Figure 3.5. When asked to repeat ten words, an average elderly man remembered 3.09 words but women remembered only 2.73 words, consistent with the large gender gaps in educational attainment among the elderly. The figure shows that the mean number of words remembered declined from nearly 4 words for those aged 45 to 49 to less than 2.75 for those aged 70 to 74 and further to less than 1.75 for those aged 80 and above. Cognitive ability is important for extending working life, managing chronic illnesses, maintaining social relations, and avoiding being victimized by financial fraud, thus research should address how to preserve cognitive abilities of the elderly population.

Figure 3.5. Cognitive Ability by Gender and Age Group
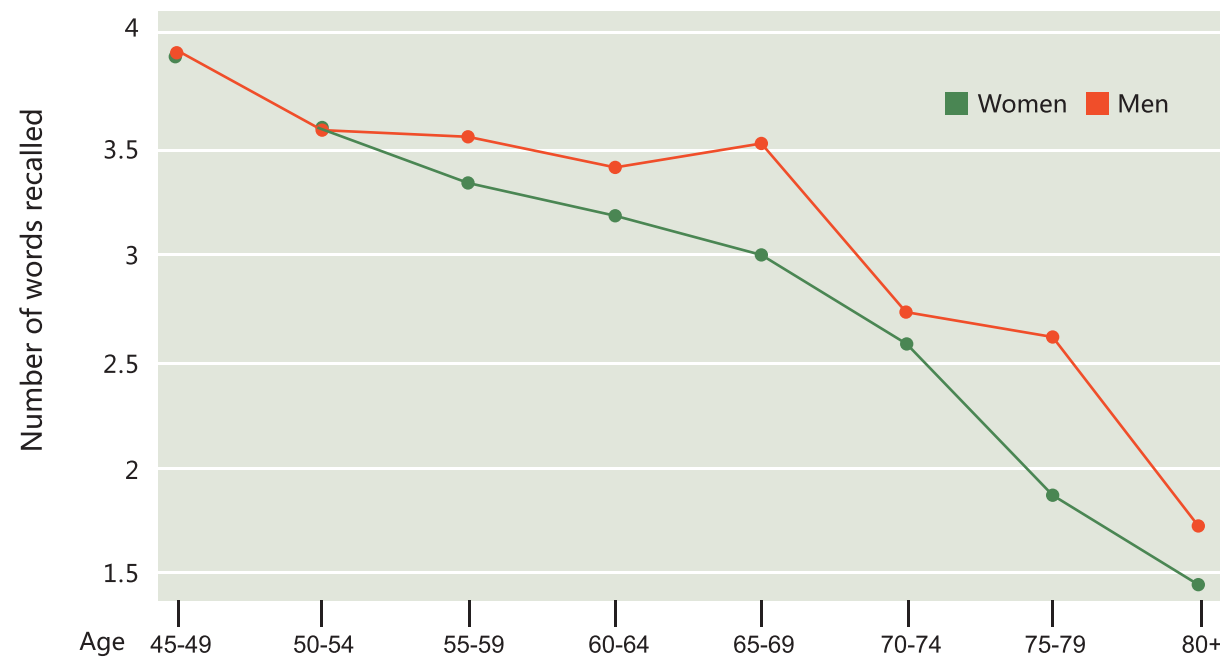
Smoking is still largely a problem among men. Figure 3.6 reveals that nearly half of elderly men (46.8%) are current smokers, and the percentage is even higher (58.3%) for men aged 45 to 59. Although a major reason for lower smoking rates among the elderly is that some elderly men have quit smoking for health or lifestyle reasons, the rate of having ever smoked is also higher for men under age 60, which suggests that the problem will not disappear quickly. Relatively few elderly women are smokers (7.2%) and interestingly among younger women (aged 45 to 59) the share is even lower (3.7%).

Figure 3.6. Smoking Prevalence by Gender and Age Group
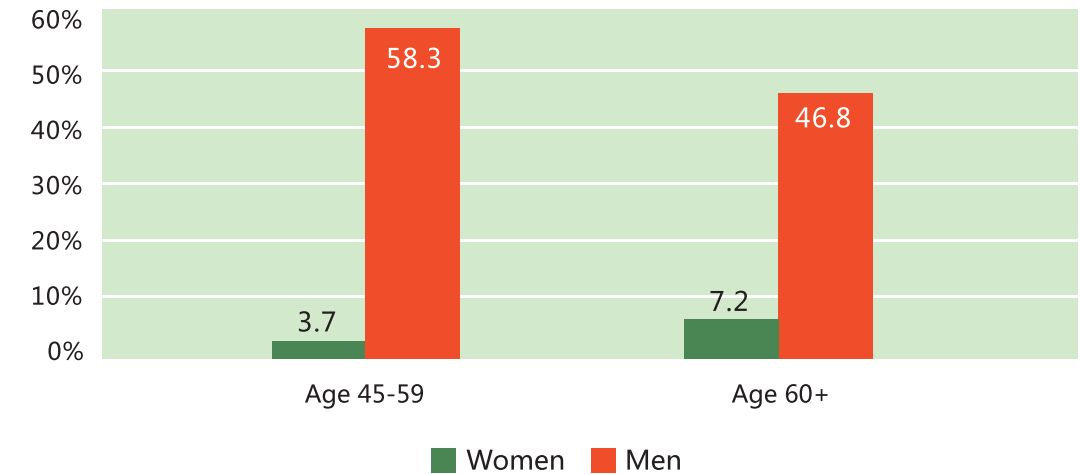
Forty percent, or 74.0 million of China's elderly display higher levels of depressive symptoms.[VII] This is displayed in Figure 3.7, which also shows that 12.7% report dissatisfaction with their lives. Thus, in addition to physical limitations, many elderly experience psychological distress. Just as for physical limitations, women fare worse psychologically. While 32.1% of men report higher levels of depressive symptoms, 47.6% of women report higher levels of symptoms.

Figure 3.7. Psychological Well-being of the Elderly
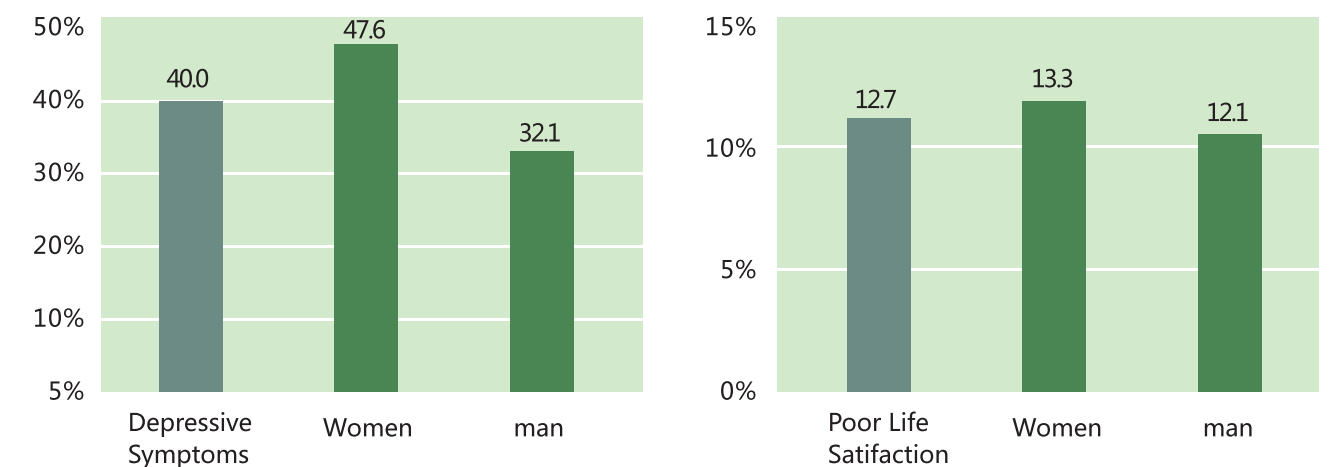
Supporting the Health Care Needs of the Elderly

Although the vast majority (88.7%) of the elderly who need assistance with daily activities receives physical assistance from family members, there are still 11.3%, or nearly 5 million elderly, who do not, including 27.0% of those who live alone. These statistics are illustrated in Figure 4.1. The substantial support received by most elderly reflects the strength of family support systems for the elderly. However, many disabled elderly still do not receive any support; this share is higher for the poor (14.8%) than the nonpoor (10.4%) and especially for those who live alone (27.0%). The number of elderly living alone is likely to increase for future elderly given the fewer number and greater migration of children, posing challenges for elderly care.

Figure 4.1. Share of Elderly Who Require Help with Daily Activities Receive Physical Support
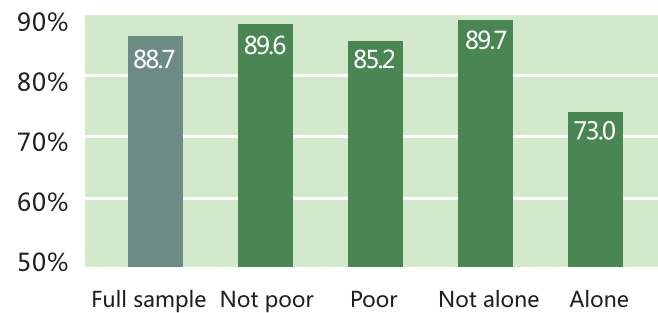
The current health care system faces a significant challenge to improve its capacity to diagnose chronic diseases among the population, as seen in the 39.9% underdiagnosis rate for hypertension among the elderly. This implies that nearly 40 million elderly have hypertension but have not been diagnosed. Figure 4.2 shows that the underdiagnosis rate is significantly higher for those with rural hukou (44.4%) than for those with urban hukou (30.3%). Here, hypertension is based on blood pressure measurements taken as part of the CHARLS survey as well as self-reported hypertension as diagnosed by a doctor. The survey also finds that among those diagnosed with hypertension, 79.5% of rural residents and 87.4% of urban residents take medication, leaving some room for improvement in treatment as well as diagnosis.

Figure 4.2. Underdiagnosis of Hypertension and Share of Taking Medication if Diagnosed by Hukou Type (Age 60+)
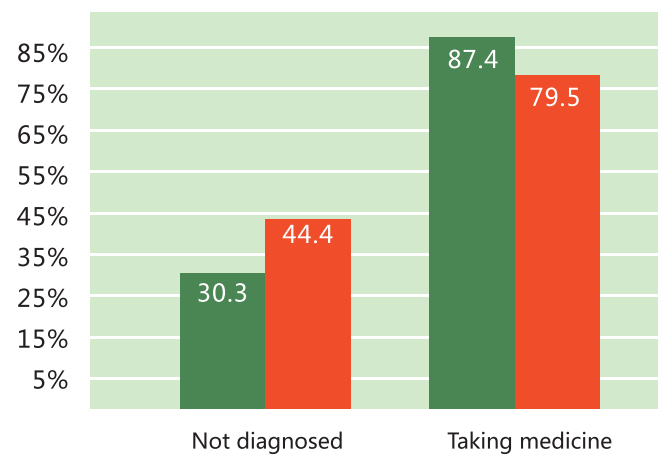
China has done a remarkable job expanding health insurance coverage to nearly the entire elderly population. As seen in Figure 4.3, the survey, which was conducted mostly in the summer of 2011, found that 92.1% of the elderly with urban hukou and 94.0% of the elderly with rural hukou reported having health insurance of some type. This reflects a dramatic increase in health care access compared to earlier in the reform period—the product of the expansion of new health insurance programs in both rural and urban areas since the mid-2000s. Coverage rates for those aged 45 to 59 were also very high (89.0% (93.8%) for those with urban (rural) hukou). Table 4.1 presents the coverage rates and median premium rates for the main health insurance schemes in China. For the elderly, 65.9% are covered by the New Cooperative Medical Scheme (NCMS) provided to rural residents, 16.3% are covered by Urban Employee Medical Insurance, 6.3% are covered by Urban Resident Medical Insurance, 3.9% are covered by Government Medical Insurance, and 1.3% are covered by private medical insurance.

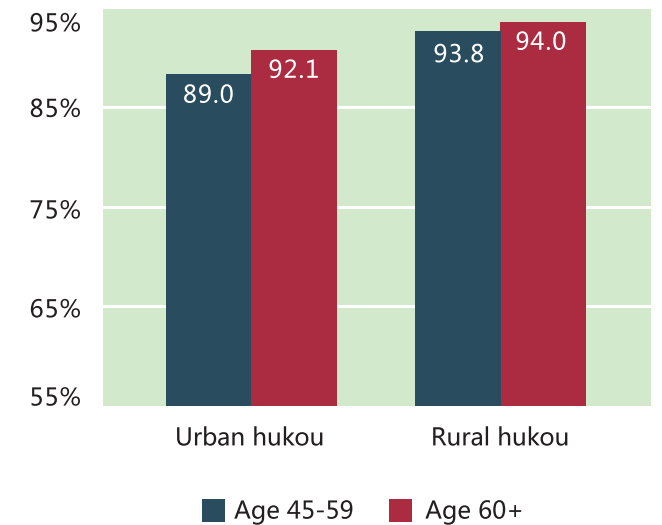**Figure 4.3. Health Insurance Coverage Rates by Age Group and Hukou Type**

Table 4.1. Elderly Health Insurance Coverage Rates and Premiums by Insurance Scheme

Health Insurance Scheme	Population Covered (%)	Median premium (yuan)
Government medical insurance	3.9	0
Urban employee medical insurance	16.3	0
Urban resident medical insurance	6.3	120
New cooperative medical insurance	65.9	30
Private medical insurance	1.3	138
Other medical insurance	0.9	120

The median premiums for all of the health insurance programs are very low (from 0 to 138 yuan per year), which is an important reason for broad participation in the programs. However, health insurance is highly segmented by population groups because benefit generosity varies considerably across programs and regions. Rapid urbanization and worker mobility call for ease of transferability across programs, but the large gaps in generosity makes unifying the programs a challenging task. Geographical segmentation of insurance pools will further inhibit elderly mobility which, in the era of declining number of children and labor migration of children, will become essential for obtaining care when needed.

Health insurance coverage rates are lower among the poor elderly, especially those with urban hukou, and among those living alone. Although health insurance coverage (medical relief included) rates are high for all groups, as seen in Table 4.2, for those with urban hukou, the coverage rate is 6.0 percentage points less for the poor elderly than for the nonpoor elderly and 5.3 percentage points lower for those living alone than for those not living alone. For those with rural hukou, health insurance coverage rates are 2.6 percentage points less for the poor elderly than the nonpoor and 6.1 percentage points less for those living alone than for those not living alone. Thus, economically and socially deprived groups also face greater vulnerability to health shocks.

Table 4.2. Health Insurance Coverage Rates of Elderly by Poverty Status and Living Alone

	Urban Hukou (%)	Rural Hukou(%)
Full sample	92.1	94.0
By poverty status		
Not poor	93.0	94.7
Poor	87.0	92.1
By living arrangement		
Not living alone	92.9	94.5
Living alone	87.6	88.4

Despite broad access to health insurance, the financial burden of medical costs, especially for hospitalization, can still be very high. 9.2% of respondents had at least one inpatient visit in the past year and 19.6% had at least one outpatient visit in the past month. Table 4.3 reports the median out-of-pocket costs for inpatient and outpatient visits as well as the median cost as a share of household expenditures per capita. For the most common health insurance program, the NCMS, the median out-of-pocket (OOP) cost of all inpatient visits in the past year is 2,400 yuan, the median ratio of annual cost to annual expenditures per capita is 39.7%, and 39.0% of those making inpatient visits spent more than 50% of their annual household expenditure per capita. The median out-of-pocket inpatient costs for the two main urban schemes are similar (2,400 and 3,000 yuan for the Urban Employee and Urban

Resident insurance programs), with median costs as a share of expenditures per capita being significantly lower than the rural scheme (22.2% and 29.7% for the Urban Employee and Urban Resident schemes). Across all schemes the share of individuals with inpatient visits whose out-of-pocket costs exceeded 50% of their expenditures per capita ranged from 15.0% to 39.0%, suggesting that hospital visits create a significant financial burden. Median out-of-pocket costs are somewhat less for outpatient visits, ranging from 100 to 170 yuan for all visits in the past month for the three main schemes. Among outpatients, median costs in the past month as a share of monthly expenditures per capita were 25.0% for NCMS and 11.2% and 22.3% for the Urban Employee and Urban Resident insurance programs.

Table 4.3. Out-of-pocket Costs of Inpatient Visits in Last Year and Outpatient Visits in Last Month (Age 45+)

Health Insurance Scheme	Inpatient			Outpatient	
	Median of annual out-of-pocket cost (yuan)	Median of out-of-pocket cost as a share of annual expenditure per capita (%)	Share of expenditure per capita≥ 50% (%)	Median of monthly out-of-pocket cost (yuan)	Median of out-of-pocket cost as a share of monthly expenditure per capita (%)
Government medical insurance	1,800	11.4	17.7	90	9.1
Urban employee medical insurance	2,400	22.2	23.8	170	11.2
Urban resident medical insurance	3,000	29.7	34.4	100	22.3
New cooperative medical insurance	2,400	39.7	39.0	100	25.0
Private medical insurance	3,700	36.5	15.0	50	4.7
Other medical insurance	1,700	22.9	18.1	120	22.3
No insurance	4,000	41.6	40.0	198	43.6

# Material Well-being of the Elderly

22.9%, or 42.4 million, of China's elderly have consumption per capita levels below the poverty line. The consumption poverty rate is significantly higher for the elderly than for those aged 45 to 59. Figure 5.1 presents consumption and income poverty rates for the elderly and those aged 45 to 59. Economists prefer using consumption per capita to calculate poverty rates because it better reflects a person's standard of living and is more stable over time. This is especially the case for the elderly, which include many individuals who no longer work and so have income levels that do not closely reflect their lifetime income or wealth. To calculate poverty rates, we use China's newly increased official poverty line of 2,433 yuan per year in 2011, which is a rural poverty line. Following the practice of World Bank researchers, we use a higher poverty line of 3,200 for those living in urban areas due to higher cost of living.[VIII] This can be seen in Figure 5.1, which shows that the consumption poverty rate for those aged 45 to 59 is 15.1%, and 22.9% for the elderly. The figure also reveals that income poverty rates are significantly higher than consumption poverty rates; the income poverty rate is 28.5% for the elderly and 19.6% for those aged 45 to 59. These poverty rates are all higher than the official poverty rate of 13.4% of the rural population in 2011 based on criteria that uses data on both income and consumption per capita. China does not calculate poverty statistics for urban areas where there are relatively few poor.

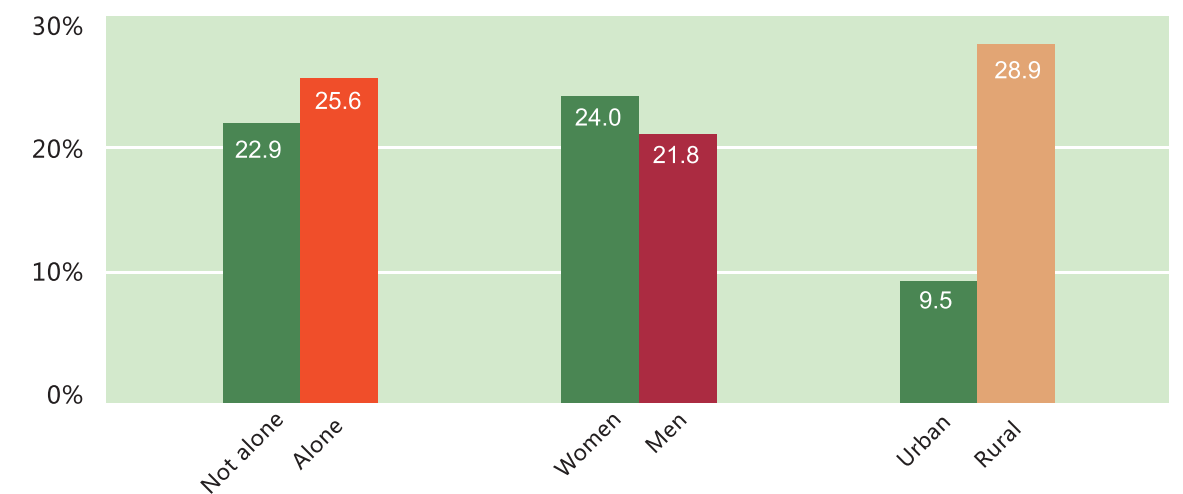Figure 5.1. Consumption and Income Poverty Rates by Age Group
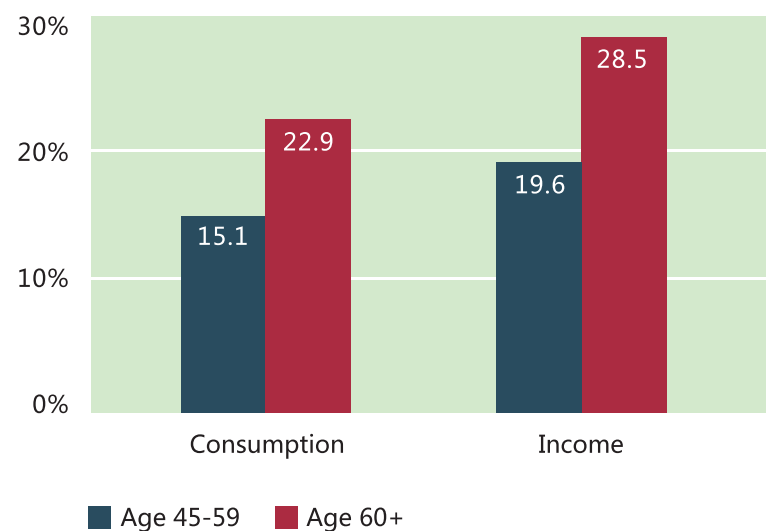
One important background for the higher incidence of poverty among the elderly is that in China rural consumption per capita declines with age. However, as seen in Figure 5.2, this pattern is not found for those with urban hukou, who exhibit a U-shaped pattern of consumption with respect to age. A major reason for the different patterns for those with rural and urban hukou is that medical expenditures tend to increase with old age in urban areas, but not in rural areas.

Figure 5.2. Consumption per Capita by Age Group and Hukou Type
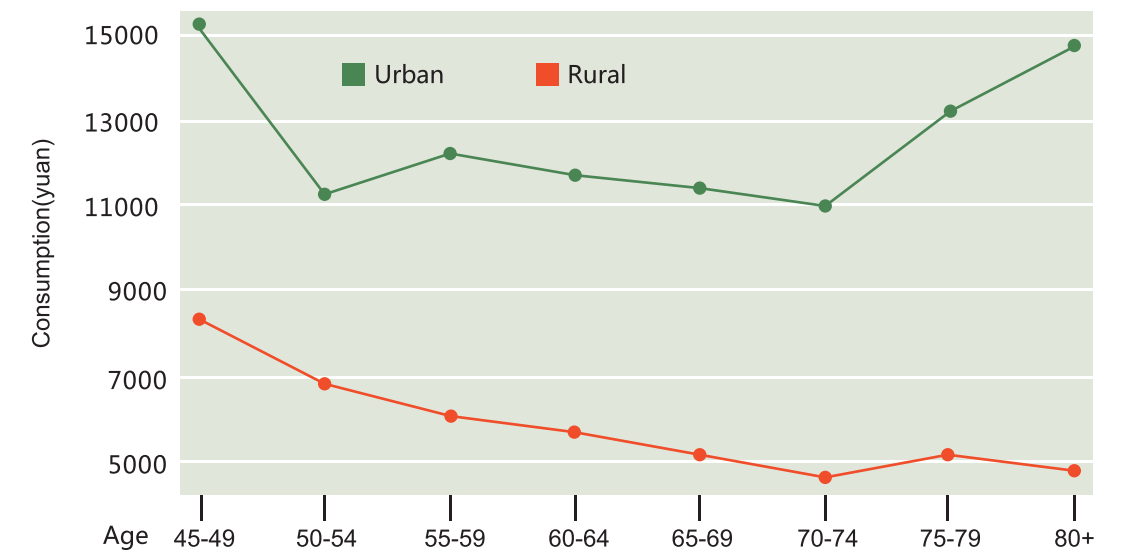
Among the elderly, the consumption poverty rate is much higher for those with rural hukou (28.9%) than for those with urban hukou (9.5%), higher for those living alone (23.6%) compared to those not living alone (22.9%), and higher for women (24.0%) compared to men (21.8%). These dimensions of vulnerability are presented in Figure 5.3.

Figure 5.3. Elderly Consumption Poverty Rates by Whether Living Alone, Gender, and Hukou Type

For those with rural hukou, financial support from other household members and private transfers (mainly from children) play a key role in reducing consumption poverty. As seen in Figure 5.4, the poverty rate based only on the income of respondents and spouses (including pensions) is 65.1%, which falls to 46.1% using pre-transfer household income per capita (after pooling income with other household members), and further to 40.3% with private transfers. Public transfers reduce poverty by 3.3 percentage points, and savings reduces poverty from 37.0% (post-transfer income poverty) to 28.9% (for consumption).

Expansion of the rural pension program could play an important role in reducing elderly poverty. 25.6% of those with rural hukou reported receiving pensions under the new rural social pension program. These individuals reported a poverty rate of 29.6% based on income including transfers, but their poverty rate would have been over 37.0% if they had not received the pensions,

assuming no change in other sources of income. However, if children reduce the amount of transfers to their elderly parents when pension becomes available, it could offset the beneficial impact of the program. Research is needed to reveal these relationships and the CHARLS data provide a basis for such analysis.

For those with urban hukou, consumption poverty rates are lower, and only coresidence has a marked impact on reducing poverty. As seen in Figure 5.4, the difference between poverty using the income of respondents and spouses only (11.4%) and poverty based on expenditures per capita (9.5%) is not nearly as large as for those with rural hukou. Co-residence with others lowers the poverty rate to 9.1% (based on pre-transfer household income per capita). Interestingly, private transfers actually increase the poverty rate, suggesting that the urban elderly are more often givers than receivers of financial assistance. Public transfers and own saving each contribute a small amount to reducing poverty rates.

Figure 5.4. Elderly Poverty Rates Using Different Definitions of Per Capita Income and Expenditures
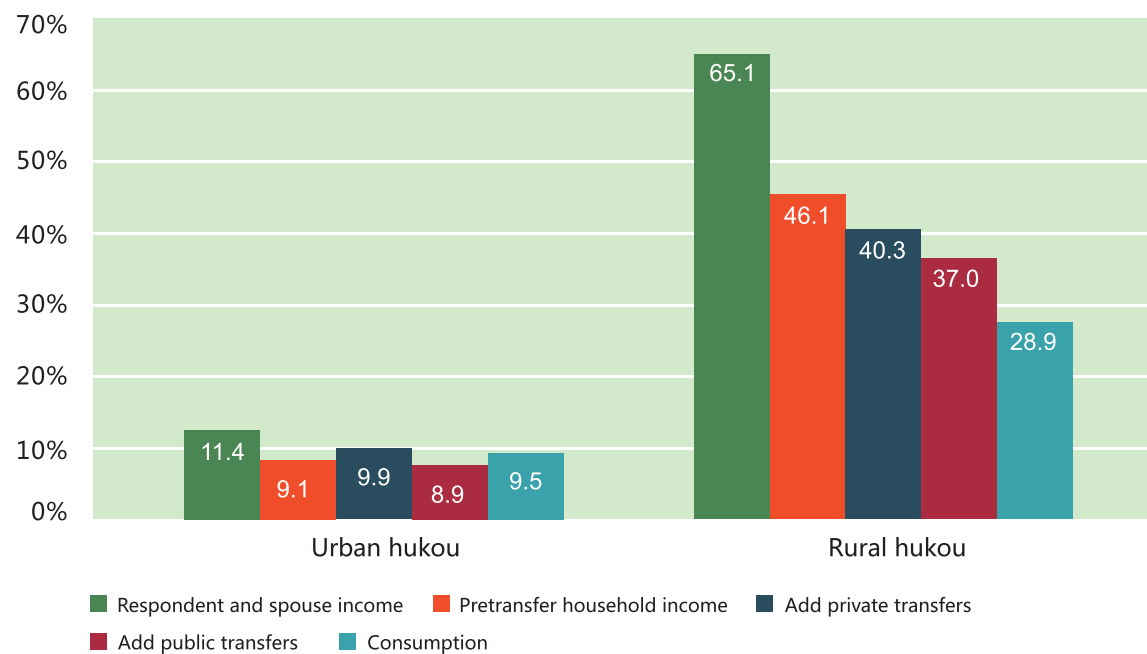
For those aged 45 and older, the median wealth per capita is 33,340 yuan, the median expenditure per capita is 5,720 yuan and the median income per capita is 8,680 yuan. These numbers suggest that median total wealth (not including the net present value of future pension benefits) is equal to about 5.5 years of expenditure requirements. Table 5.1 presents median values for the same material well-being indicators but broken down by age group (45-59 and 60+) and by hukou type. First, it shows that for the elderly, median expenditures per capita are more than twice as great among those with urban hukou as those with rural hukou. The urban hukou-rural hukou ratios of median wealth per capita and income per capita are even more dramatic at 3.7 and 3.8, respectively. Urban-rural hukou differences for those aged 45-59 are similar but not as pronounced. In addition, for all groups and all material well-being measures, median values are higher for those aged 45-59 than for elderly. Finally, comparing values at the 25th, 50th, and 75th percentiles, Table 5.1 reveals substantial inequality in expenditures per capita and especially wealth per capita. For the elderly, the ratio of expenditures per capita at the 75th and 25th percentiles is 2.5 for those with urban hukou and 2.7 for those with rural hukou; for wealth per capita the ratios are 6.0 and 5.7 for those with urban and rural hukou. The percentile ratios are similar but not quite so high for those aged 45-59.

Table 5.1. Expenditure, Income, and Wealth Per Capita (Age 45+) at 25th, 50th, and 75th Percentiles (unit: yuan)

	45-59						60+					
	Rural hukou			Urban hukou			Rural hukou			Urban hukou		
	25%	50%	75%	25%	50%	75%	25%	50%	75%	25%	50%	75%
Expenditure per capita	3,204	5,317	8,750	5,868	9,930	16,603	2,374	4,005	6,428	5,467	8,690	13,493
Income per capita	2,780	7,975	16,100	8,843	16,773	27,753	1,379	4,400	9,935	9,600	16,320	27,160
Wealth per capita	11,510	30,379	64,359	34,407	82,500	211,350	7,314	18,395	41,617	26,050	70,760	156,650

The vast majority of the wealth of the older population (age 45+) is in the form of housing (72.9% for those in the middle wealth per capita quintile). Figure 5.5 breaks down the composition of wealth, not including the net present value of future pensions. For those in the middle 20% of the wealth per capita distribution, the next largest components of wealth after housing are land (16.4%) , consumer durables (5.0%), liquid (mainly financial) assets (3.9%) and fixed production assets (1.8%). Housing is even more important for those with urban hukou, among which the wealth composition shares for those in the middle wealth per capita quintile are the following: housing 86.5%, liquid assets 7.3%, consumer durables 4.3%, fixed production assets 1.1%, and land 0.9%. For those with rural hukou, the similarly calculated wealth shares are housing 68.5%, land 22%, consumer durables 5.2%, liquid assets 2.2%, and fixed production assets 2.1%. 80.3% of the older population live in a house owned by a household member, and 6.2% are in households that own two or more houses. Given that much of the wealth of older persons is in the form of real estate and 44.7% of the elderly receive no pension (56.9% of those with rural hukou and 16.4% of those with urban hukou), designing financial instruments such as reverse mortgages may be important to ensure that the elderly can leverage their wealth to support higher levels of consumption. Additionally, if land can become transferable assets to rural households, then the wealth level of rural elderly can be elevated and become a source of finance for their consumption.
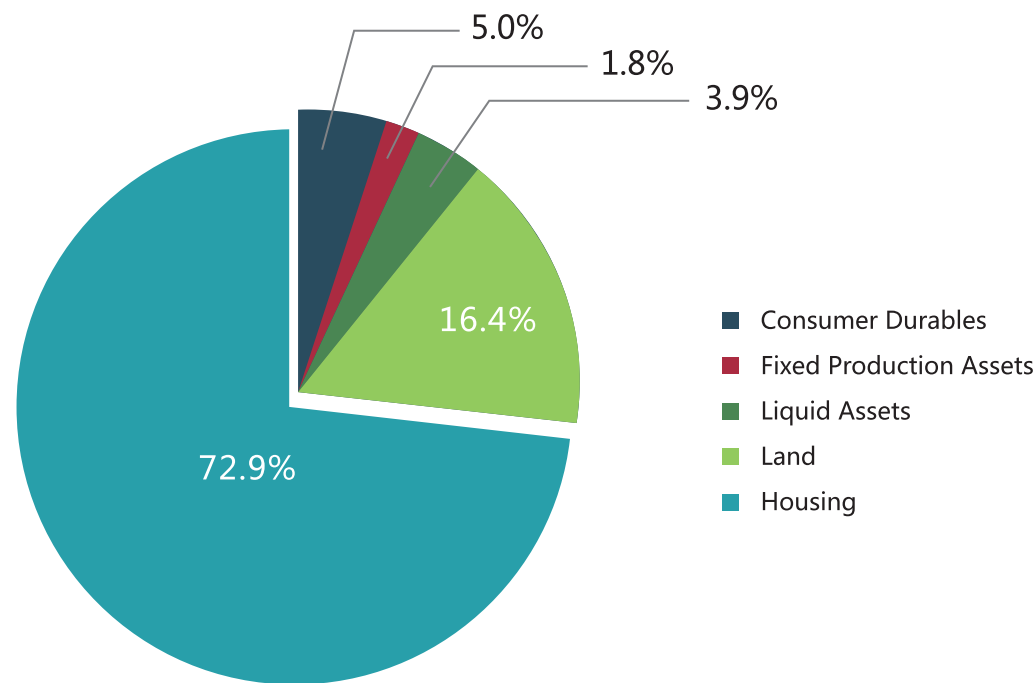

Figure 5.5. Median Wealth Per Capita Composition (Age 45+)

- 5.0%
- 1.8%
- 3.9%
- 16.4%
- 72.9%

Legend:
- Consumer Durables
- Fixed Production Assets
- Liquid Assets
- Land
- Housing

Note: These are wealth shares of those individuals falling in the 40th to 60th percentiles of the wealth per capita distribution.

Family Support for the Elderly

As just noted, financial support from family members, through both co-residence and private transfers or gifts, plays a key role in financing the consumption levels of the elderly, especially among rural households. Children and other family members also play an important role in providing physical and psychological support for the elderly. One of the challenges of population aging in China is that in the future the elderly will have fewer children to support them in old age and children are increasingly living away from their parents.

The average number of living children decreases very steeply among younger cohorts. As seen in Figure 6.1, which plots the mean number of living children by age, those aged 65 and older have between 3 and 4 children on average, while those aged 45 to 49 have less than 2 children on average. For future cohorts of Chinese elderly their average number of children will be lower and the share of elderly without any children (now 3.3%) is likely to increase. Thus, public programs will increasingly be needed to assist those who lack private sources of support.

Figure 6.1. Number of Living Children by Age Group
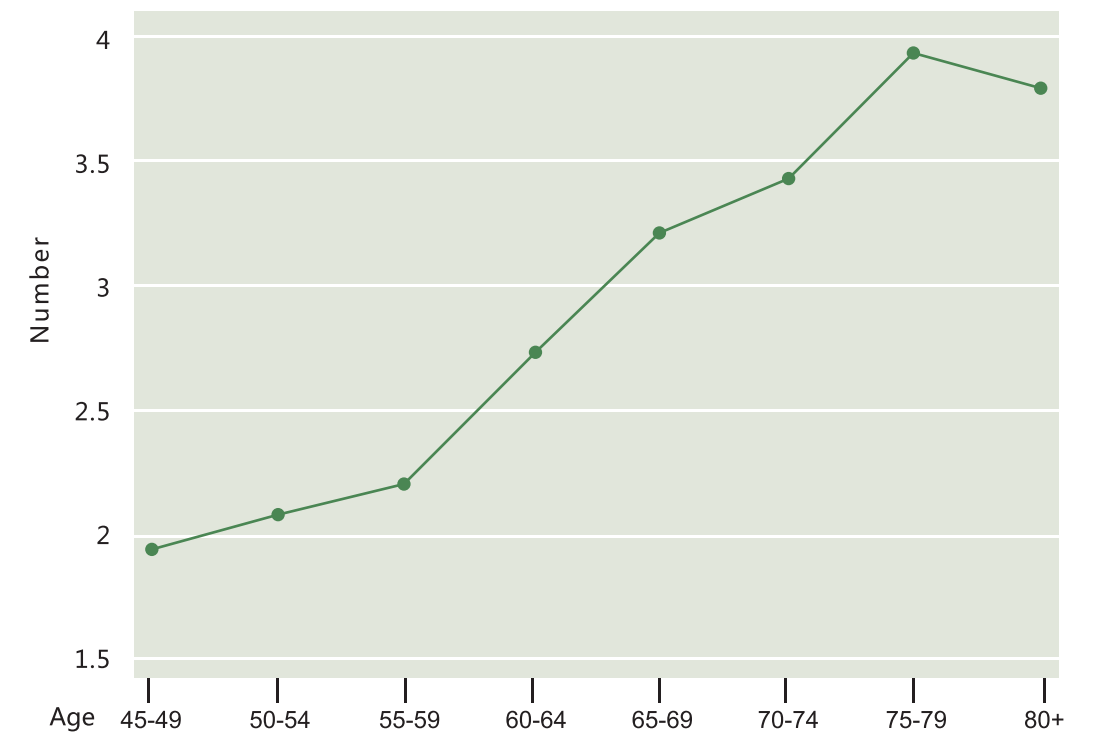
Only 37.8% of the elderly live with children; nearly as many elderly (36.8%) live with their spouse, while 16.2% live with others, and 9.2% live alone in single-person households. These results are displayed in Figure 6.2. Among those living with others, 19.0% live with children-in-law (but not children), and 59.8% live with grandchildren but no children or children in law. Thus a large number of elderly play the role of primary caretaker of grandchildren when children and their spouses migrate.
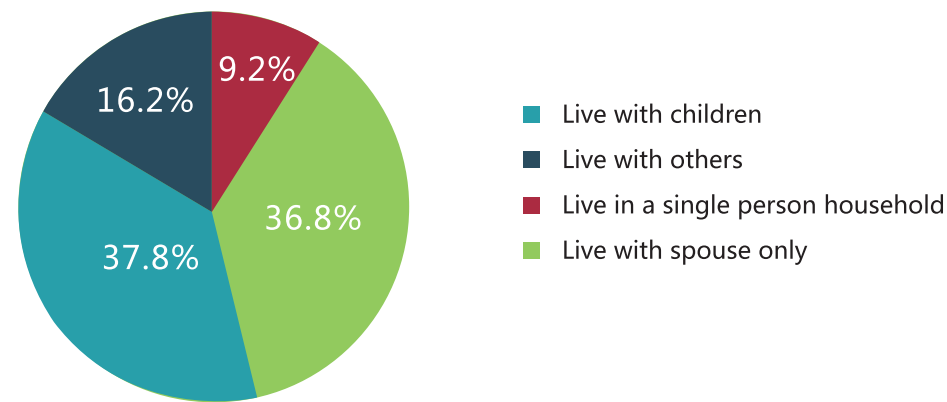

- Live with children
- Live with others
- Live in a single person household
- Live with spouse only

Figure 6.2. Living Arrangements of the Elderly

However, although many elderly do not live with their children, the vast majority of elderly have at least one child living in the same immediate neighborhood or if not, the same county or city. As seen in Figure 6.3, the 62.2% of the elderly not living with children include 37.4% who have a child living in the same neighborhood and 15.4% who have a child living in the same county or city.This means that looking at the fraction of elderly living with their children does not portray an accurate description of the amount of help that they receive from their children. Still, 6.1% of the elderly have children but none who live in the same county or city. Overtime, this ratio is likely to increase. This is the group for whom obtaining adequate family support may be very challenging. When care needs arise either they or their children may want to relocate. To facilitate this process, it is important to understand barriers to the migration of elderly parents.

- Live with children
- Closest child in same neighbourhood
- Closest child in same county/city
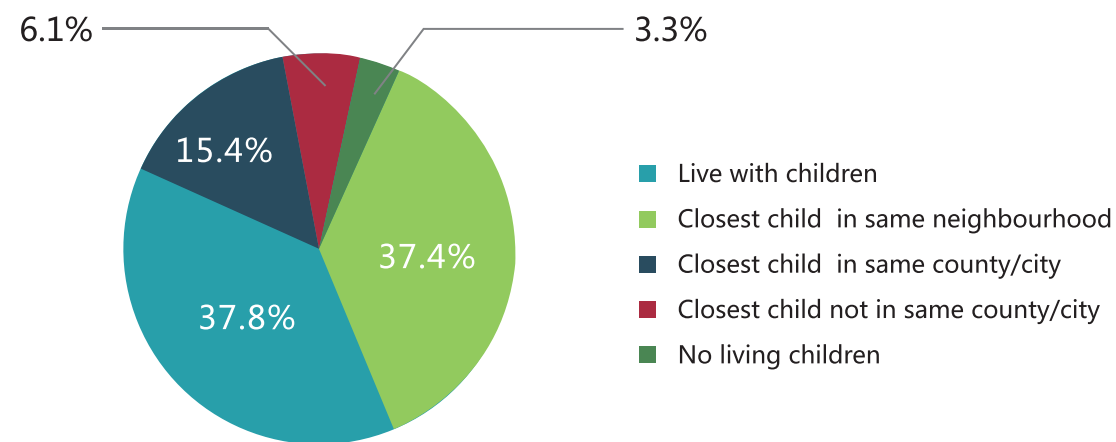- Closest child not in same county/city
- No living children

Figure 6.3. Proximity to the Elderly of Nearest Children

Just less than half of the elderly (46.9%) received transfers in the past year from children who did not live with them. Table 6.1 summarizes the extent of transfers between the elderly and their non-co-resident children. Only 19.0% of the elderly give transfers to their children. Thus, in contrast to Western countries such as the US where resources flow downward from parents to children, in China resources flow upward from children to parents. This is similar to other Asian and developing countries where due to rapid growth younger cohorts are often able to accumulate more wealth than older cohorts. Research has found that transfers from children are responsive to the needs of parents, which is also evident from the role of private transfers in reducing rural poverty. For those receiving positive net transfers from non-coresident children, the median amount of the transfers in the past year is 1,700 yuan and the median share of expenditures financed by transfers is 37.3%. It could be that many of the elderly who do not receive transfers from children living outside of the household receive financial support from children through co-residence. However, among those elderly who don't live with children and who have children, only 53.3% receive transfers from children, which suggests that there is a significant share of the elderly who do not receive any financial support from children.

Table 6.1. Transfers Between Elderly and Non-coresident Children

Percent receiving transfers from non-coresident children	46.9
Percent giving transfers to non-coresident children	19.0
Percent receiving transfers from children if not living with children and have children	53.3
Median positive net transfers received by those who receive positive net transfers from non-coresident children (yuan)	1,700
Median net transfers received as share of elderly household expenditures (for those receiving positive net transfers) (%)	37.3

Work and Retirement

The retirement decision of the elderly has important consequences for all dimensions of well-being. Work can provide income to support material well-being, and impact a person's physical and psychological health both positively and negatively.

The share of the population that works not surprisingly declines with age, but the sharpest decline occurs in the 50s and early 60s for those with urban hukou and not until after age 65 for those with rural hukou. These patterns are displayed in Figure 7.1. For those with urban hukou, the employment share declines from nearly 80% at age 45-49, to about 40% at age 55-59 and 20% at age 60-64. In sharp contrast, for those with rural hukou, the majority of individuals work even at age 65-69, with rates not declining to below 20% until after age 80. These large disparities suggest that there are significantly different institutions affecting retirement for urban and rural citizens. With respect to retirement behavior, urban China looks like many European countries, while rural China looks like many developing countries.

Figure 7.1. Employment Rate by Age Group and Hukou Type
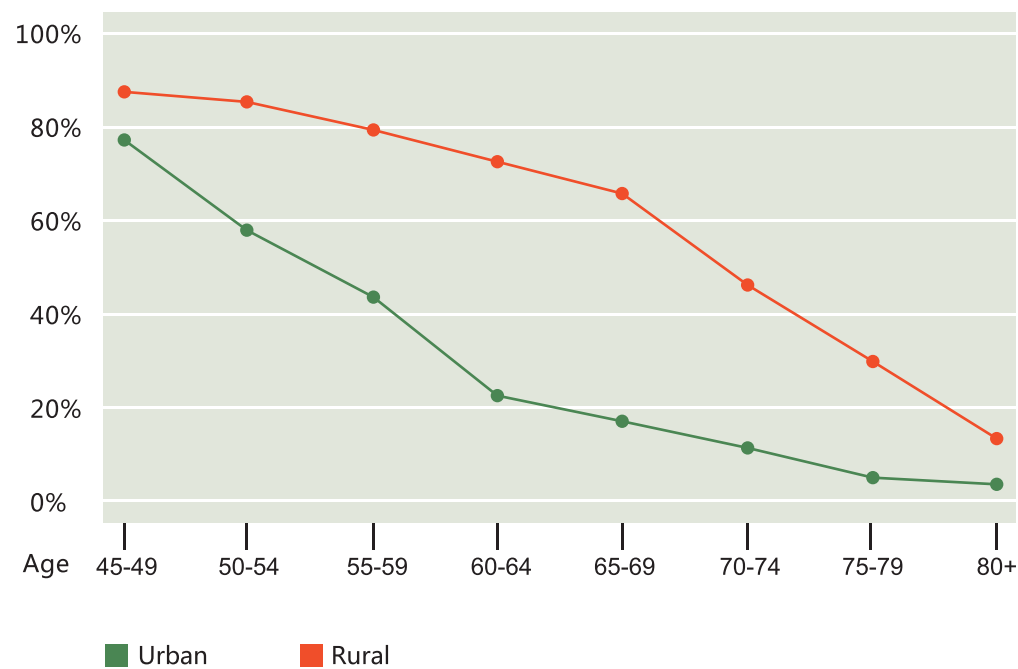
Gender differences in employment rates are much larger for urban hukou holders than for rural hukou holders. Figure 7.2 shows that for those with urban hukou, a large gender gap in labor force participation appears at age 50-54, when over 75% of men work while less than 45% of women work. At older ages, urban women continue to leave the labor force; by age 60-64 less than 10% are working.

Urban female rates of labor force participation at older ages are extremely low by international standards. For those with rural hukou, there is a consistent (approximately) 10% gender gap in labor force participation rates, with fewer women working than men. However, a majority of women are still working at age 65-69.

Figure 7.2. Employment Rate by Gender, Age Group, and Hukou Type
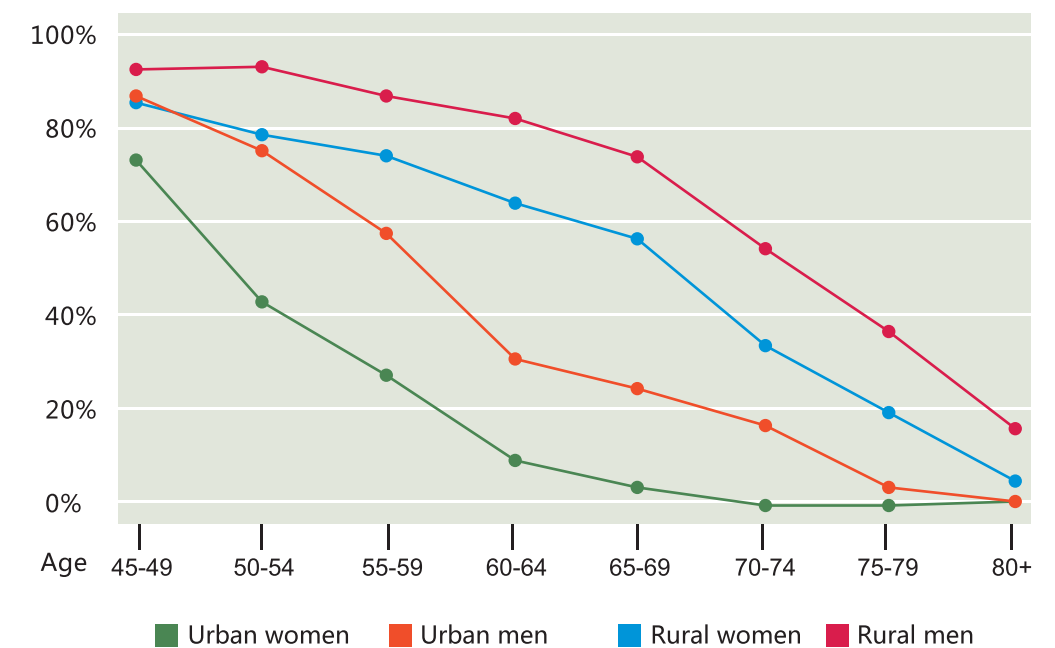
Given the low labor force participation of the older, urban population, China has an opportunity to improve the incentives for older individuals, especially women, to work longer in order to boost labor supply, increase output, and reduce the financial burden of population aging. The decline in employment at younger ages for those with urban hukou is a consequence of mandatory retirement at age 50-55 for women and 60 for men and access to pension benefits upon retirement. Some even retire before they reach mandatory retirement age, usually in response to incentives provided by employers. After retiring formally from

their jobs, relatively few elderly take up new jobs. Extending working age among the urban population could be accomplished by reforming pension programs so that pension benefits do not penalize individuals who are productive and willing to continue working past retirement age, and limiting incentives to take early retirement. While difficult for those near retirement, who have had less time to plan, gradual increases in the mandatory retirement age may be advisable for younger workers, or at least raising the female retirement age to the same as men as in most of the OECD.

Pension coverage rates, defined as those who receive pensions or participate in pension programs, are 83.6% for those with urban hukou and 43.1% for those with rural hukou. Recognizing the need for public programs to support the elderly, the Chinese government has made great progress in increasing the population coverage of public pension programs to reach previously un-pensioned elderly urban residents and rural residents. As seen in Figure 7.3, for those with urban hukou, three fifths are covered by employee pension programs, while another 21.4% are covered by other programs. In rural areas, according to the CHARLS survey, the new rural social pension program had reached 25.6% of those with rural hukou at the time of the survey (summer of 2011 or a little later), with another 19.2% covered by other programs. It continued to expand rapidly after the survey was completed, and monitoring its progress and impact on the rural elderly in future years will be an important objective of CHARLS.

Figure 7.3. Pension Coverage of the Elderly by Hukou Type
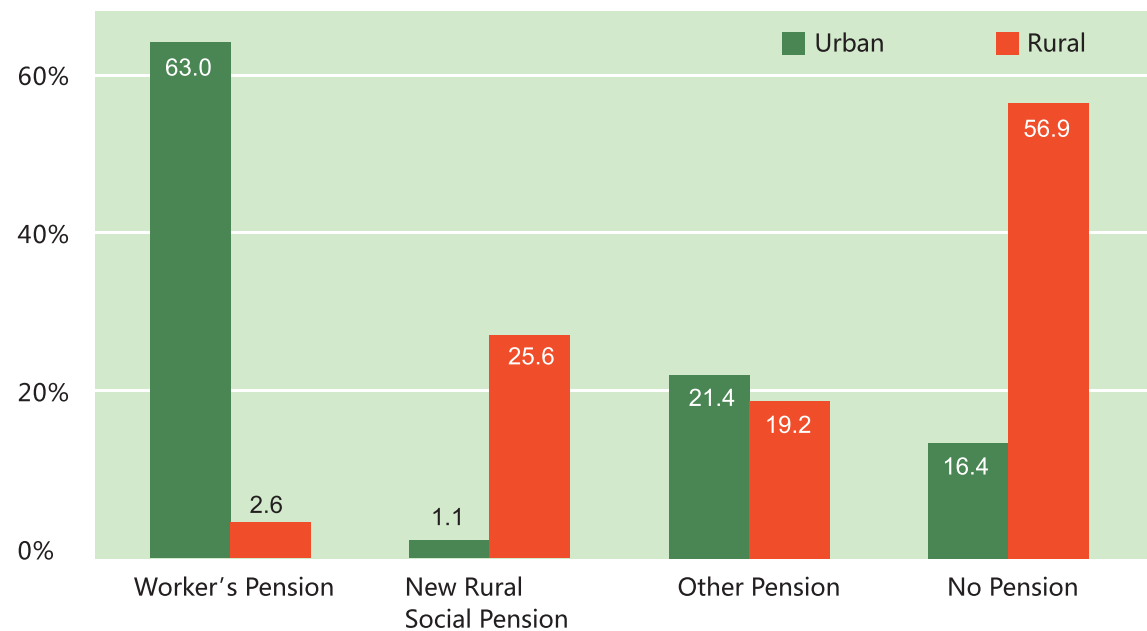
The pension benefits of new programs are very modest, while those provided by government or firms are very generous. Table 7.1 reveals the great disparity in benefit levels across programs as well as the share of the population participating in different pension programs. Median annual pension benefits of the new rural pension program and urban (and other) residents' pension insurance are just 720 to 1,200 yuan, while those from government or public agencies (24,000 yuan) and firm pensions (18,000) are much greater. The median share of expenditures financed by pensions is 20% or less for the new programs while it is 244% and 192% for the government/public agency and firm basic pensions. Table 7.1 also reports the percentage of the elderly receiving benefits under the different programs. Of the 55.3% of elderly who receive any pension benefits (note that 6.7% receive benefits from more than one scheme), 21.6% receive benefits from one of the two main public pension programs for urban workers, 10.7% from the firm basic pension program and 10.9% from the government or public agency worker pensions program. Thus, just as for medical insurance programs, pension programs provide very different benefit levels and thus remain highly segmented, making it difficult to integrate programs or pool program finances in a way that will facilitate labor mobility.

Table 7.1. Pension Benefits of the Elderly

Pension Scheme	Individuals Receiving the Pension (%)	Median Annual Pension Benefit (yuan)	Median Share of Expenditure (%)
Pension Subsidy to the Oldest Old	3.6	720	19.1
New Rural Social Pension Insurance	18.2	720	21.0
Urban and Other Residents' Pension	14.4	1,200	38.7
Firm Basic Pension	10.7	18,000	192.9
Firm Supplemental Pension	1.2	13,200	169.7
Government or Institutions' Pension	10.9	24,000	242.2
Commercial Pension	0.3	14,400	106.1
Other Pension	2.7	9,600	150.7

Challenges of population aging

China faces tremendous challenges in ensuring the well-being of its elderly population. A significant share of the elderly suffer from physical health problems, exhibit higher levels of depressive symptoms (40%), and have consumption levels that are below the poverty line (22.9%). The population is aging rapidly and the number of children who can help support their parents is declining with each successive cohort. Of particular concern is that poor and socially isolated elderly appear to be more vulnerable across multiple domains of well-being.

In response to these challenges, the Chinese government has made admirable progress in aggressively expanding new programs to support the elderly. Most critically, public health insurance programs, which are particularly important for the elderly, now cover nearly the entire population; and pension programs are being scaled up nationally as well. However, these programs still are not generous enough to cover most required health expenses or retirement living expenses. Program generosity is generally higher in higher income counties and cities and likely will

continue to improve in the future as incomes rise. Because of this children and other family members are still vital for providing physical assistance and financial support for their elderly family members. The CHARLS survey data show that this is indeed the case.

However, the findings of the CHARLS survey also show that significant challenges remain in providing adequate support to the elderly. Some elderly who require assistance for basic daily activities are not receiving the help they need, especially those living alone. These are likely to be older persons, whose spouses have died and therefore are potentially more vulnerable. The health care system has much room to improve in diagnosing chronic diseases, such as hypertension, that often afflict the elderly. And the out-of-pocket costs of health care, especially for inpatient visits, are still very high for many families even if they have health insurance. Even with public and private assistance, consumption levels decline with age in China, leading to higher consumption poverty rates for the elderly, especially among the rural elderly. This suggests that greater policy attention should be paid to identifying and assisting the elderly who are materially vulnerable.

The urban elderly, especially women, stop working at very early ages in comparison to China's rural elderly and to other countries in Asia and even developed countries, which puts greater pressure on public and private support systems and suggests potential benefits to reforms that increase incentives to extend working lives. Just as for health care, the new pension programs, including the new rural pension program, have expanded coverage, but the benefit levels remain very modest and far less generous than established pension programs for urban workers.

It is hoped that these findings from the national baseline survey of the China Health and Retirement Longitudinal Study (CHARLS) will improve understanding of the actual circumstances of today's elderly and inform policy discussions on how to best support the needs of today's and tomorrow's elderly. This is just a starting point. As the CHARLS data are further analyzed, many more insights are sure to emerge, and as CHARLS continues to follow the respondents over time, much more will be learned about the dynamics of health and retirement and the impact of policy reforms on the elderly.

Acknowledgements

Endnotes:

Ⅰ See http://www.stats.gov.cn/english/newsandcomingevents/t20120120_402780233.htm (accessed May 19, 2013).
Ⅱ World Population Prospects, the 2010 Revision. See http://esa.un.org/unpd/wpp/index.htm
Ⅲ http://charls.ccer.edu.cn/en/page/documentation-2011_national_baseline
Ⅳ Based on a question on self-reported health status using a five-point scale: very good, good, fair, poor, very poor.
Ⅴ Based on 6 questions about activities of daily life (ADLs) and 5 questions on indicators of activities in daily life (IADLs).
Ⅵ WHO standards are underweight if BMI<18.5, overweight if BMI≥25, obese if BMI≥30.
Ⅶ Depressive symptoms are measured using a widely used set of 10 questions developed by the Center for Epidemiological Studies in the US. Each question is scored from 0 to 3, and those with a total score no less than 10 are considered to exhibit higher levels of depressive symptoms
Ⅷ The implied 31.5% higher cost of living of the urban poor is based on analysis of National Bureau of Statistics household survey data in 2002, with adjustments made for subsequent changes in the rural and urban consumer price indices. See Martin Ravallion and Shaohua Chen, "China's (Uneven) Progress against Poverty", Journal of Development Economics 82: 1-42, 2007.
Ⅸ The value of land is calculated as the present value of farm products.