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Human-Resource Development and Demographic Change in China

China's economic success in recent decades can be traced in large part to the mobilization of the country's enormous human-resource base. Improvements in the health and education of China's huge working-age population have made a strong contribution to economic growth.

Looking ahead, as today's large cohorts of workers grow older and transit into retirement, much smaller cohorts of children—born in an era of very low fertility—will be growing up and joining the workforce. Given a smaller number of workers, human-resource development that maximizes the potential of each individual will be even more central to China's efforts to achieve broad social and economic development goals.

Ensuring a strong human-resource base requires a multi-faceted approach that begins early in life because child health, including prenatal health, and education are central to achieving individual potential. This approach continues as young adults complete their education and seek out work opportunities that allow them to employ the skills they have developed. It protects workers and their families from disability and unemployment. And finally, it insures that the elderly have the resources they need when they are no longer employed.

In the past, many of these important goals were realized through informal means, with responsibilities falling on families and to some extent on communities. But increasingly, governments are assuming primary responsibility for education, healthcare, pensions, and other forms of social insurance. This is a particularly challenging task in China because of the extraordinary social, economic, and structural changes that the country has experienced over the past 35 years.

This issue of the *NTA Bulletin* is based on "Human-resource development in China," a research note prepared by Sang-Hyop Lee, Andrew Mason, and Ke Shen for the Workshop on Human-Resource Transformation in the People's Republic of China. The workshop was held in Beijing on 23 October 2014, sponsored by the Asian Development Bank in collaboration with the International Development Research Centre (IDRC).

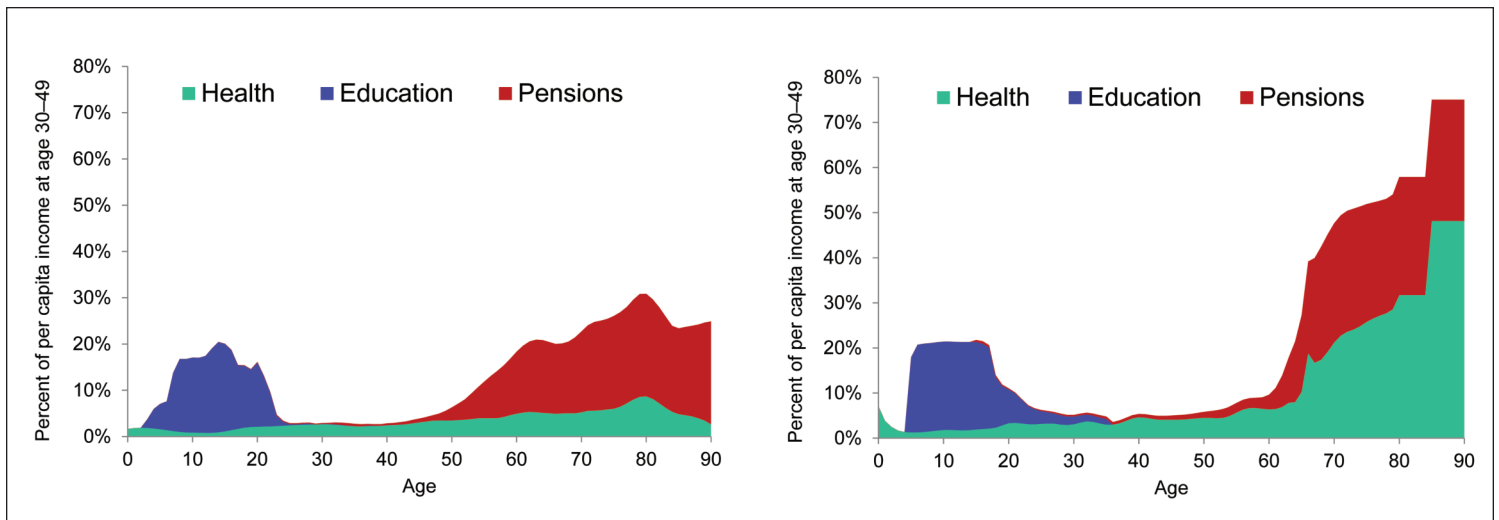


Figure 1. Age structure and public finances, China 2010 (left) and United States 2011 (right): Per capita public transfer inflows for education, health, and pensions by age.

Sources: For China, Shen and Lee (forthcoming); for the United States, Gretchen Donehower, personal communication, and www.ntaccounts.org.

Note: All values have been normalized by dividing by the average per capita labor income of adults age 30–49.

Demographic shifts

China is experiencing two important demographic shifts that will have both immediate and long-term effects on public finances and on the economy more generally. The first of these is urbanization. In 1980, about one in five Chinese were living in urban areas (United Nations 2014b). Today, the urban and rural populations are about equal. Looking ahead, the urban population will continue to grow rapidly, while the rural population will continue to shrink in percentage terms.

Urbanization trends are virtually identical for men and women, but urban-rural residence varies by age. As of 2010, young adults, no doubt motivated by employment opportunities, were more likely to live in China's cities, while children and the elderly were more likely to live in the countryside. Thus economic disparities between urban and rural areas tend to have particularly important effects on children and the elderly.

The second demographic shift is China's changing population age structure. The number of children has declined by almost one-third over the past 35 years. In 1975, the number of children age 0–14 peaked at more than 360 million, but by 2010, the number had dropped to below 250 million (United Nations 2014a). Over the same time period, the working-age population increased very substantially. The population age 25–59 more than doubled—from 310

million in 1975 to 700 million in 2010. This increase in the working-age population, combined with a decline in the number of dependent children, provided China with an important opportunity for economic growth.

In the coming years, the working-age population is expected to decline as fewer children grow up and enter the workforce. At the same time, today's large number of workers will be retiring, and the elderly population will expand at an unprecedented rate. In 2010, China's population age 60 and above was 169 million, accounting for 12 percent of the total (United Nations 2014a). The United Nation's medium-fertility variant projects that the elderly population will increase to 346 million by 2030, or 24 percent of the total population, and to 454 million by 2050, or 33 percent of the total. It remains to be seen how this dramatic shift in age structure will affect China's economic growth.

Public spending on children and the elderly

Changes in China's population age structure have an important impact on the economy because of the close connection between age and economic roles. Children depend heavily on governments and families to fund both their current material needs and their human-capital development in the form of healthcare and education. A decline in the number of children eases the financial

burden on parents and taxpayers and makes it possible to invest more in each child.

In some respects, the situation for the elderly is similar. The elderly everywhere are likely to experience an extended period during which they consume more than they produce through their labor. This gap between consumption and labor income may be funded through a combination of public and private transfers from the working-age population, and this is the case in China. But the elderly do not depend entirely on intergenerational transfers. They also rely on assets acquired and saved earlier in their lives.

The connection between public finances and age structure in China can be seen quite clearly in the left panel of Figure 1, which shows per capita benefits received at each age in 2010. Three types of benefits are distinguished—education, healthcare, and pensions. The right panel shows the same data for the United States in 2011. To make international comparisons meaningful, the values are expressed as a percentage of the average labor income of persons in each country in the prime working ages of 30–49.

In China, peak benefits for children, in the form of healthcare and education, are about 20 percent of the average labor income of a working-age adult. Peak benefits for the elderly, consisting of pensions and healthcare, come to about 30 percent.

In the United States, peak benefits for children are slightly higher than in China, at about 22 percent of average prime-age labor income, while peak benefits for the elderly are much higher, at 75 percent of labor income. These much higher transfers to the elderly in the United States are largely the result of much higher spending on healthcare. Miller (2011) gives estimates of public-sector spending on different age groups for other countries.

Apart from receiving smaller public transfers than the elderly, children in China face other disadvantages. As mentioned, children are more likely than adults to live in rural areas where access to education and healthcare is limited. Children are also more likely than adults to live in lower-income households.

Lee and Mason (2011) describe a methodology for comparing human-capital spending by using a synthetic-cohort measure that provides an estimate of total spending on education at ages 3–26 and on healthcare at ages 0–17. Given the public spending patterns that prevailed in China in 2010, human-capital spending on an average child amounted to 2.8 years of per capita pre-tax labor income (Table 1). More than 90 percent of this amount was spending on education, and less than 10 percent was healthcare spending.

Table 1. Human-capital spending per child in China (2010) and the United States (2011).

	Years of average pre-tax labor income at age 30–49		
	Health	Education	Combined
China 2010	0.24	2.60	2.84
United States 2011	0.39	3.01	3.40
Percent difference	64.9	15.7	19.8

Note: Values calculated by summing age-specific public spending on education at ages 3–26 and public spending on healthcare at ages 0–17. All values normalized by dividing by the average annual per capita labor income of adults age 30–49.

Overall human-capital spending on young people was lower in China than in the United States, even when calculated as a proportion of pre-tax labor income in each country. The difference in education spending was moderate, but the difference in healthcare spending was substantial: Spending on child health in the United States was about two-thirds higher than in China.

The elderly, age 65 and above, received significantly lower public transfers in China than in the United States. Pensions in China, calculated as a proportion of pre-tax labor income, were about 75 percent of the level of pensions in the United States, while healthcare spending for the elderly was only 25 percent of the United States level.

Public spending by residence, gender, and income group

One advantage of public spending on children's health and education is the opportunity to improve equity and upward mobility by increasing the resources available to children in low-income families or who are otherwise disadvantaged. Using data from 2010, Ke Shen and Sang-Hyop Lee (forthcoming) studied how Chinese government spending on education and healthcare for different age groups varies by urban-rural residence, gender, and income class. The study also analyzes differences in spending on public pensions. Employing the National Transfer Accounts framework, this work identifies some important strengths of public spending in China, but also some possible weaknesses.

The good news is that basic public education is compulsory and widely available to all children. Whether urban or rural, boy or girl, high income or low, per capita public spending levels on basic education are similar.

Larger gaps emerge for preprimary education and higher education. Public spending on education for those 17 and older is substantially lower for rural residents and lower-income groups than for others. Young people in the highest income quartile are particularly advantaged compared with those living in middle- or lower-income families. Young women are actually more likely to attend university than young men and, hence, per capita spending on education is higher for females.

In addition to public spending, private spending on education is very important in China. Private spending by high-income parents reinforces the advantage that their children already enjoy in terms of public spending. In particular, high private spending, along with urban residence, provides access to the most prestigious public universities.

Public spending dominates healthcare, and another piece of good news is that access to healthcare for children and prime-age adults is relatively unaffected by urban-rural residence, gender, or income class. Disparities in public spending on healthcare are much greater at older ages. This is because urban residents, men, and high-income individuals are much more likely than others to have comprehensive, employment-based health insurance.

Shen and Lee found large disparities in income from public pensions. In 2010, urban residents, men, and members of high-income households were receiving much larger pensions than rural residents, women, or lower-income individuals (Figure 2).

The value of pensions is expressed here as a proportion of the average labor income among 30–49-year-olds in the specific population group under consideration—rural or urban residents or people in one of four income groups. Note that these values are ratios of current pension payments to current labor income. Urban residents in their 70s, for example, received pensions amounting to about 25 percent of the current average urban labor income. Given the rapid increase in labor income in recent years, however, these elderly were receiving much more than 25 percent of the average labor income they earned when they themselves were 30–49. Also, note that pension income is averaged over all people who are not working in each age group, including those who are not receiving pensions. It is expressed as a proportion of labor income averaged over all persons age 30–49, not just those who are working.

For people in their 70s, pension income relative to labor income is almost three times greater in urban than in rural China. In addition to having better pension benefits overall, urban residents also begin receiving pensions at earlier ages. Because of younger retirement ages, pension income starts

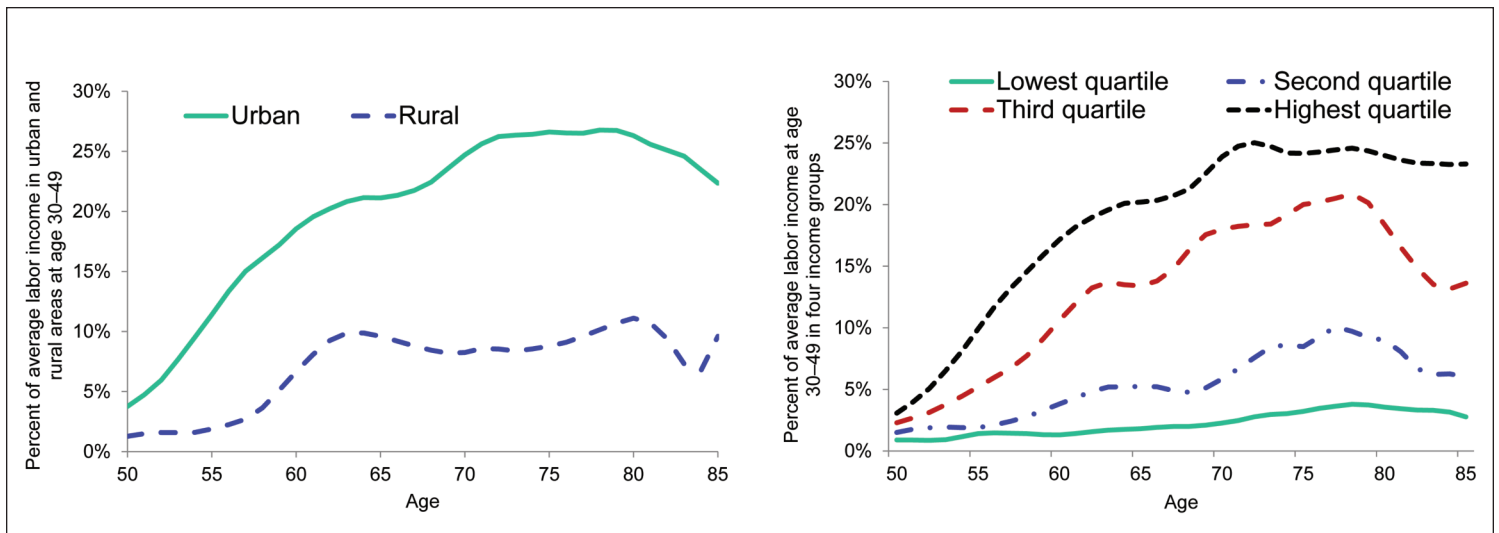


Figure 2. Pensions by age and urban-rural residence (right) and by income quartile (left), China, 2010.

Source: Shen and Lee (forthcoming).

Note: Pension amounts are calculated as the ratio of average pension benefits for all people in an age group to the average labor income of all people age 30–49 within each urban/rural or income group.

rising at age 50 in urban areas but not until almost age 60 in rural areas.

This large difference in pension income has a strong effect on sources of support for the elderly in urban and rural areas. According to the 2010 census, up to 70 percent of the urban elderly relied on public pensions as their main source of income, compared with only about 10 percent of the elderly in rural areas (Shen and Lee forthcoming). This wide urban-rural gap in pension benefits mainly results from a highly fragmented public old-age support system, a situation which the government is seeking to correct.

Public pensions are also replacing a relatively high proportion of labor income for older adults living in the highest-income households. The elderly living in urban households receive a similar level of pension benefits. For those in the bottom two income quartiles or in rural areas, however, public pensions are very limited and replace a very small proportion of labor income.

Current challenges

Amid growing concerns about inequality, the Chinese government has made substantial progress in initiating and improving public-sector programs to provide education, healthcare, and pensions for all its citizens. The challenges are great, however, because China's population is changing so dramatically.

At this point, China is poised to address many of its human-resource challenges successfully. Public spending on education,

and to a lesser extent on healthcare, appears to be commensurate with the current level of development. There is one important exception to this generalization, however—the disparity in spending on higher education. Although university enrollment tripled in the 10 years between 2000 and 2010 (Shen and Lee forthcoming), rural and lower-income young people still face clear disadvantages.

Improving economic security for the elderly is another challenge. Under China's current, highly fragmented public pension scheme, pension programs for urban and formally employed citizens are relatively well established and generous, but rural residents and those employed in the informal sector do not have adequate access to public pension programs and, thus, remain highly vulnerable in their old age. Extending public pension programs to these groups will be challenging in the face of a slowly growing workforce and a swelling elderly population.

One policy change that would help address this challenge would be to raise the retirement age. As its population ages, China should be prepared to make better use of the productive potential of older people.

Overall, successful human-capital investment is essential for achieving sustainable economic growth and improving the well-being of all age groups. Intensive investment in human capital can potentially offset the

adverse effects of population aging on public finances. China can avoid erosion of its tax base by substituting smaller numbers of more skilled workers for larger numbers of less skilled workers. And the way to accomplish this is to exploit the quantity-quality tradeoff by investing more in the health and education of every child.

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