

Chapter 2

Population Aging and Economic Growth

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Abstract Currently, China is experiencing the early phase of population aging. Therefore, opportunities, such as ‘demographic profit’ and ‘demographic dividend’, provided by the ‘post golden age’ of age-structure transformation should be seized in order to prepare for ‘demographic deficit’ and ‘demographic debt’ that might emerge in the later phase of population aging. Meanwhile, we should encourage more consumption from the elderly and accelerate the establishment of the social security system and its rules, while transforming the pattern of economic development from investment and foreign trade-oriented to consumption-led; analysing the dual impact of population aging on savings, investment, human capital and technological progress by drawing on both positive and negative examples from other countries, making full use of advantages and avoiding disadvantages; tapping the human resource potential of the elderly; and giving full play to the positive effect of population aging in breaking out of the ‘middle-income trap’.

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1 Population Aging and Labour Supply

According to demographic classification, the entire population is divided into three age groups of adolescent (0–14), adult or the working-age population (15–59/64) and the elderly (above 60/65). As men are both producers and consumers, they are closely related to economic growth in both a narrow and a broad sense. People of all age groups are consumers. As for producers, adolescents are potential producers but the elderly are no longer producers as they are retired. Therefore, as only adults or the working-age population are both producers and consumers, studying changes in the number of the working-age population and the ensuing changes in labour supply is crucial to economic growth.

The working-age population is the main source of labour in China, and over 80% are in-service labour. As 4–5% of the working-age population are disabled people or those who cannot support themselves, plus a proportion of them are still students, not all the working-age population are in-service labour. But as the proportion of the active working-age population is comparatively stable, changes in the working-age population can reflect changes in labour supply.

1.1 *The ‘Golden Age’ Is Not Over*

Changes in the proportion of the working-age population between the age of 15–64 within the total population as projected by this book are consistent with the results of the 2010 National Census. The projected figure is a little lower than the result of the Census, but the projected trend is consistent. The projected trend can be seen in Fig. 1.¹

Scholars have offered several explanations for changes in the working-age population. Some believe that insufficient labour supply is becoming a trend. Labour shortages that once hit the Yangtze River Delta area, Pearl River Delta area, Beijing and nearby Tianjin and Hebei, have now expanded to central and western China. As China is a developing country with abundant labour resources and relatively scarce natural resources, labour-intensive industry will still be their strength in global trade. In the future, China’s development will depend largely on labour and therefore measures should be taken to address the challenges of labour shortage that will occur after the Lewis Turning Point. Others believe that China is a developing country with the world’s biggest population, working-age population and labour. Although population and labour surplus have been greatly alleviated, the surplus still exists, bringing huge pressure on employment. In this book we argue that China is currently undergoing phase II of the transformation from a

¹See: Ministry of Human Resources and Social Security: ‘Analysis on the Demand and Supply of Urban Public Employment Service Market in the First Quarter of 2012’, retrieved June 10, 2015 from <http://www.mohrss.gov.cn>.

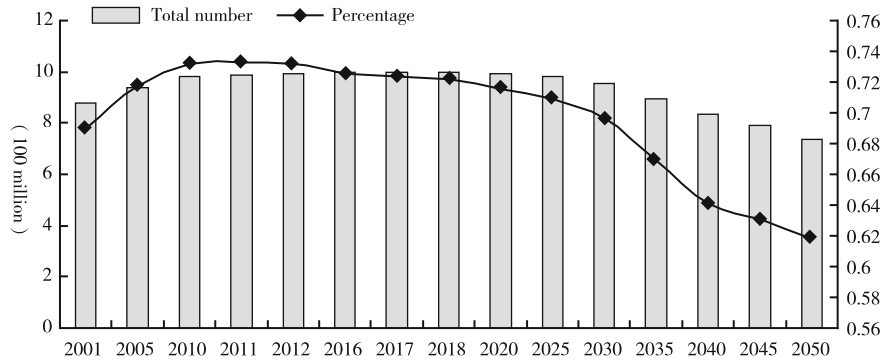


Fig. 1 Projected changes of the working-age population (15–64)

labour surplus to an equilibrium. With possibilities of labour supply surplus, insufficient supply and equilibrium, this phase sees the coexistence of both labour surplus and shortage. On the one hand, a labour surplus has long existed: China’s registered unemployment rate remains over 4% and the actual figure could be even higher. However, while labour shortages are now prevalent, many university graduates have difficulty in finding a job. On the other hand, the phenomenon of labour shortage as reflected by a shortage of migrant workers should be analysed in detail. Furthermore, the issue of structural labour shortage within industries needs special attention. Labour shortage not only concerns the quantity of labour, but also the quality of labour, which might be a result of the over-dependence of extensive economic development led by heavy and chemical industries on blue collar workers.

As labour supply has a huge impact on socio-economic development, it is crucial to find out when the ‘golden age’ of population age-structure transformation will end, and whether the ‘middle-income trap’ could be transcended by then. Table 1 provides three types of projections. Table 1 shows detailed changes of the proportion and absolute number of the working-age population (15–64).

According to the medium-level projection, changes in the proportion and absolute size of the working-age population (15–64) are consistent with that of the low-level scenario, only with a less significant decrease. The projected period of the ‘golden age’ of age-structure transformation is comparatively shorter and ends in 2030 when the elderly dependency ratio rises to near 0.5, lasting for 40 years.

Table 1 Projected changes of the proportion and size of the working-age population between 2010 and 2050 (% , 100 million)

	2010	2020	2030	2040	2050
High-level scenario	71.5, 9.83	67.1, 10.0	65.7, 10.2	61.6, 9.76	60.2, 9.62
Medium-level scenario	72.3, 9.83	69.0, 9.97	67.4, 9.88	62.9, 9.12	63.0, 8.82
Low-level scenario	73.2, 9.83	71.5, 9.92	69.5, 9.52	64.1, 8.34	61.9, 7.37

Compared with the medium-level and low-level scenarios, the high-level scenario is a long way from reality and thus will not be explained in detail. Currently, China is experiencing the ‘golden age’ of population age-structure transformation that will last from 1990 to 2030 and enjoying the ‘demographic profit’ and ‘demographic dividend’ it has brought. Although the closing of the ‘demographic window’ has already started, there are still another 15 years before it fully closes. It is crucial to seize this opportunity to realize steady and fast economic growth. If China’s annual economic growth rate is higher than 7%, then national GDP could double by the end of the ‘golden age’, and per capita GDP could reach the average level of developed countries, thereby overcoming the ‘middle-income trap’.

1.2 Dealing with the Closing ‘Demographic Window’

Currently, China’s labour market is transforming from surplus’ to an equilibrium or even ‘deficit’. To ensure that the quantity, quality and structure of labour can keep up with the demand of economic development, we should try to address the challenges posed by the closing of the ‘demographic window’ in 15 years. Possible challenges include:

First, a shortage of senior technicians, researchers and skilled technicians. According to the ‘Analysis on the Demand and Supply of Urban Public Employment Service Market in the First Quarter of 2012’ provided by the Ministry of Human Resources and Social Security, there is a huge gap between the demand and supply of high-level technicians, with more job vacancies than applicants. The job opening to available candidate ratio for senior engineers, technicians and senior technicians stood at 2.59:1, 2.32:1 and 2.18:1, respectively, indicating significant shortage of high-level technical talent (see Footnote 1).

Second, the conflict of employment pressure and talent shortage in emerging industries. According to the Ministry of Education, the total number of university graduates in China surpassed 6.3 million in 2010. It is difficult for them to find a satisfying job in the job market. Meanwhile, emerging industries, as a result of the optimization and upgrading of the industrial structure, are often faced with the problem of talent shortage. While there are far more applicants than are required in some employment units, others have the opposite problem. To address such a conflict, we should employ the mechanisms and channels of both the market and the government and let them play different roles, using the ‘visible hand’ and ‘invisible hand’ to balance labour supply and demand and seek to reach a rational and effective allocation of labour and labour-related resources.

Third, a structural shortage of labour in the field of agriculture during the process of agricultural modernization. Since the Reform and Opening-up Policy, economic development and urbanization have accelerated. An increasing number of rural migrant workers flooded into the urban area, leaving the elderly and women to be the main forces of rural agricultural work. Therefore, a rural labour force featuring the elderly and female as its main force, and with low education levels, seriously

impedes rural economic development and the realization of both better lives for farmers and agricultural modernization. To solve this problem, we should strive to improve the education of rural migrant workers while promoting the development of science and technology, culture and talent in rural areas, so as to cultivate and attract talent for agricultural modernization.

From a long-term perspective, we should prepare for the closing of the ‘demographic window’ in advance. Most important of all, we should maintain healthy, balanced and fast economic development, aim to make the GDP of 2020 double that of 2010, and that of 2030 double that of 2020, so as to successfully deal with the ‘middle-income trap’ and make the level of economic development equivalent to that of the average level of developed countries. It is thus vital to push forward the transformation from extensive economic development to intensive economic development step by step. Such a transformation requires changes in production and reproduction as well, and the previous focus on the quantity of labour supply should now transfer to being on quality. The past six decades since the founding of new China have seen significant improvements in people’s health, level of education and comprehensive qualities, which has helped to form strong human capital. However, this is still some distance from the requirements of modernization. At this current time, historic changes in population age structure are taking place, providing opportunities for improving the quality of the entire population, especially their level of education, as well as controlling the number of the total population. The transformation from ‘quantity-oriented’ to ‘quality-oriented’ population and labour is not only consistent with the needs of economic development, industrial upgrading and the progress of modernization, but also provides new drives for human resource enhancement and the circumventing out of the ‘middle-income trap’.

1.3 The Aging of the Working-Age Population

According to the International Labour Organization, the population between the ages of 45 and 64 is considered the older segment of the working-age population. As population aging continues, the proportion of older workers within the entire working-age population is likely to keep rising, while the proportion of workers aged below 45 will decrease, presenting an aging trend within the working-age population as a whole.

This book proposes that it is not the decrease of the absolute size of the working-age population that is worrying, but the aging trend within that group. Such a view has been expounded upon in the ‘Introduction’. Based on projections from the United Nations, the proportion of the working-age population aged between 45 and 64 will continue to grow from 27.2% in 2000 to 42.5% in 2030 and to 47.5% in 2050, when it will account for almost half of the entire working-age population. The absolute size of the working-age population aged

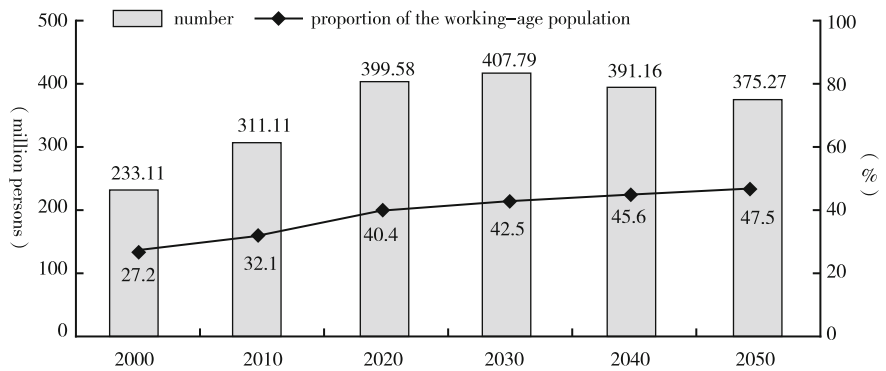


Fig. 2 Projected changes of the number and proportion of the working-age population within the age group of 45–64 during 2000–2050

between 45 and 64 will peak in 2030, at 407.79 million, before beginning to decrease. In 2050, the absolute number might decrease to 375.27 million, showing a inverse ‘U’-shaped curve. See Fig. 2 (see Footnote 1).

2 Savings and Investment and Population Aging

Some have noted that while the American people are fond of taking out loans and buying things, Chinese people prefer savings and investment. Is this true? A look at the savings and investments of the Chinese elderly might give the answer.

2.1 Savings and Population Aging

Savings in China come in three categories: savings by private individuals, by enterprises, and by the government. In studying the changes in the relationship between population aging and savings, the main research subjects are changes in the saving patterns of urban and rural residents. As savings by individuals are income minus expenditure, it is fitting to start with this category.

2.1.1 Income of the Elderly

Table 2 shows the results of ‘A Sample Survey on the Living Conditions of the Elderly in Urban and Rural China’ conducted in 2000 by the China Research Centre on Aging in 20 Provinces, Autonomous Regions and Municipalities, and data from

Table 2 Average income and income source of urban and rural elderly 2000–2010 (yuan)

			Total income	Income from the market	Retirement benefits/pension	Public transfer income	Family transfer income	Other income
Urban area	2000	Total	7392	721	5400	331	648	292
		Male	9907	1143	7538	388	473	365
		Female	5031	325	3392	277	813	224
	2005	Total	11,963	890	9077	342	1336	317
		Male	15,397	1351	12,047	371	1232	397
		Female	8773	462	6319	316	1433	242
	2010	Total	18,141	1308	15,625	234	651	324
		Male	22,657	1946	19,527	271	562	350
		Female	13,947	715	12,001	199	733	299
Rural area	2000	Total	1651	675	177	60	585	155
		Male	1910	715	329	81	553	231
		Female	1405	637	32	40	615	82
	2005	Total	2722	937	369	131	1042	244
		Male	3351	1145	556	169	1175	306
		Female	2114	736	188	94	913	183
	2010	Total	4722	1540	1154	507	609	913
		Male	5546	1801	1572	670	579	923
		Female	3925	1287	750	349	637	902

the ‘Follow-up Survey on the Living Conditions of the Elderly in Urban and Rural China’ conducted in 2006 and 2010.²

Table 2 reflects three features of the income of the elderly: First, a relatively fast income increase. In 2000, the average annual income of urban elderly amounted to 7392 yuan (or 893 USD according to the average exchange rate of 2000) with this figure increasing to 18,141 yuan (or 2680 USD according to the average exchange rate of 2010) in 2010, up by 1.5 times. In the same period, the average annual income of rural elderly increased from 1651 yuan (or 199 USD in 2000 to 4722 yuan (or 698 USD in 2010, up by 1.9 times. The increase rate is a bit lower when using comparable prices, but a pattern of relatively fast income increase for urban and rural elderly is accurate.

Second, there is a huge income gap in two categories, the first being that the incomes of urban residents are significantly higher than those of rural residents. In 2000, the income gap amounted to 5741 yuan, with this figure expanding to 13,419 yuan in 2010. The other category is that incomes of males are significantly higher

²Statistics shown in the 2000 and 2010 survey are statistics from those years, while statistics in the 2006 survey are from 2005.

than those of females. In 2010, the average annual income of urban male elderly amounted to 22,657 yuan, 8710 yuan higher than the 13,947 yuan of female elderly; while the figures for rural male residents were 5546 yuan, 1621 yuan higher than the 3925 yuan of rural female residents.

Third, the income sources for urban and rural elderly are different. Retirement benefits are the main source of income for urban elderly. In 2000, retirement benefits accounted for 73.1% of the total income of urban elderly, and the proportion further rose to 86.1% in 2010. Labour income is the main source of income for rural elderly. The proportion of labour income took up 40.9% of the total income of rural elderly in 2000. In recent years, this proportion has tended to decline, and dropped to 32.6% in 2010, as the proportion of family transfers has kept rising. However, in 2009, China began to promote the new-type rural pension in pilot areas. The pension soon prevailed, making pensions a new major source of income for rural elderly.

2.1.2 Savings of the Elderly

As the economy develops and the income of the elderly increases, the proportion and amount of income saved by both urban and rural elderly is on the rise. In 2000, 26.6% of the urban elderly kept savings in the bank and this proportion rose to 36% in 2010, up by 9.4%; in 2010, the average amount of savings of urban elderly reached 22,685 yuan, 3.2 times that of 2000. Comparatively speaking, the rural elderly keep fewer savings in the bank. The figure was 14% in 2000 and rose to 23.4% in 2010, 12.6% lower when compared with that of the urban elderly. In 2010, the average amount of savings of rural elderly reached 2388 yuan, 20,297 yuan lower than that of their urban counterparts, signifying a widening gap.

It is commonly believed that factors determining changes in the savings rate include changes in the age structure of the population, precautionary savings and constraints on mobility. Most scholars believe that population aging has a negative impact on the savings rate, as the level might gradually decrease with the progression of population aging. One logical explanation for the long-term coexistence of the high investment and high savings rates which is exclusive to China is the 'demographic profit' and 'demographic dividend' brought by the 'golden age' of age-structure change, as China is at the early phase of population aging. At the same time, precautionary savings contributed to the overall increase of the savings rate while the income of the elderly decreased over the past years. A survey conducted by People's Bank of China in 2012 showed that people's desires to spend remained low while their desire to save stayed high. Statistics show that 82.5% of urban residents prefer to save (see Footnote 1). Personal savings are usually intended to function as a kind of "rainy day fund", especially for possible medical expenses. With reforms in endowment and medical insurances within the urban and rural areas, the need for precautionary savings has weakened.

2.2 *Investment and Population Aging*

2.2.1 Population Aging and Capital Accumulation

Disposable national income could be divided into two categories: the accumulation fund and the consumption fund. When national income is fixed, the relationship between the values of the accumulation fund and the consumption fund shows a negative correlation. Little study has been done about the relationship between population aging and capital accumulation. Most people believe that population aging mainly has a negative impact on capital accumulation and investment. The experience of developed countries such as Sweden, Denmark, France and Germany shows that the concurrence of an extended decline in birth rates and population aging put a lot of pressure on social endowment insurances. As a result, the consumption fund used to care for the elderly would increase, which would constrain the growth of the accumulation fund. There are several ways to slow down the decrease of the accumulation fund. One way is to restrain the rate of increase of the consumption fund for the elderly. Measures include reducing expenditure on retirement benefits and moving up the retirement age. Recently, some European countries, such as Greece and Spain have been embroiled in the European debt crisis. One way to deal with it is by moving the retirement age up from 65 to 67 so as to reduce withdrawal from the fund. Another is by maintaining steady and fast economic growth and the scale of the accumulation fund by increasing national income and preserving the ratio of savings-to-investment. From a long-term perspective, continual rapid population aging and an increase in the consumption fund will surely influence the growth of the nation's accumulation fund, which means that the government should provide necessary fiscal subsidies to boost government spending toward the care of the elderly.

2.2.2 Population Aging and Fixed Assets Investment

While the relationship between population aging and changes in capital accumulation as discussed above holds in many countries, it does not necessarily do so in China. Statistics show that from 1991 to 2010, the annual growth rate of investment in fixed assets reached 22.6%. And since 2001 (when population ageing began in China), the average growth rate reached 23%. Investment in fixed assets also contributed to GDP growth: in 2000, its contribution ratio was 22.4%, contributing to 1.9% of GDP growth; the figures rose to 39.0% and 4.4% respectively in 2005, and further to 54.0% and 5.6% in 2010, leading the 'three major demands' of investment, consumption and international trade (see Footnote 1). On one hand, the increasing investment in fixed assets can be attributed to extensive economic growth while on the other, 'demographic profit', 'demographic dividend' and 'demographic window' provided by the 'golden age' of population age-structure change leads to a huge demand for investment in fixed assets.

2.2.3 Population Aging and New Investment Demand

Currently, there is an urgent need to adjust the structure of investment due to problems such as the conflict of overcapacity caused by productive investment in some industries with comparatively low levels of investment in social areas, as well as insufficient investment in facilitating the transformation of families and societies due to population aging. To increase investment in social areas, especially in the field of social services, it is vital to ensure that the elderly are taken care of and that their quality of life is improved.

In China, the responsibility to care for the elderly has traditionally been borne by family members. However, the grip of this tradition on society has loosened considerably in recent years. A survey conducted by the China Research Centre on Aging showed that in 2010, empty-nesters accounted for 51% of all seniors nationwide, up by 9.7% from 2006, and 12.1% higher than 2000. The increase in urban areas was from 42 to 57.4%, that in the rural areas was from 37.9 to 45.9%. Such a result is a combination of fewer children, changes of living plans, marketization and accelerating population mobility, among others. To meet the needs of 'empty nest' seniors, especially those who live alone, it is necessary to provide better care and services. It should be noted that in the past decade, the proportion of the elderly who can take full care of themselves dropped by 2.8%, while the proportion who have some dependency on care-givers rose and those who are completely dependent on care-givers remained stable. However, with the progression in population aging and accelerated growth of the number of elderly, the absolute number of elderly wholly dependent on care-givers increased significantly. In 2010, 52.7% of the elderly were unable or had difficulties taking care of themselves. Approximately 7.92 million needed daily care, and nearly 2.95 million were not taken care of. According to the 2010 China's Aging Development Bulletin published by China National Office on Aging, by the end of 2010, there were 39,904 welfare organizations for the elderly with nearly 3.15 million beds, housing nearly 2.43 million of the elderly, showing an occupancy rate of 0.8. The Sixth National Census conducted in 2010 shows that the number of the seniors 60 or older had reached 17.765 million, taking up 13.26% of the total population, which means that out of every 1,000 senior people, only 17.7% are housed (see Footnote 1). China's institutions for elderly care are mainly nursing homes in urban and rural areas and nursing homes for martyrs' family members, aimed at senior people from five guaranteed families (the older, the infirm, old widows and orphans) in the rural area, 'three withouts' senior people (people without identification papers, a normal residence permit and a source of income) in the urban area and disabled soldiers. With accelerating population aging and changes in family and social structure due to the impact of the market economy, normal families depend more on institutions for elderly care. However, although the demand for elderly care is increasing, the quantity and quality of existing elderly care programmes is far from good enough. Concerning the development of elderly services, most problems should be settled by the market. But meanwhile, as elderly services are part of social welfare, government guidance and targeted investment are also indispensable.

3 Population Aging and Human Capital Accumulation

Since the beginning of the 21st century, along with the acceleration of informatization and economic globalization, demographic transition and population aging have also accelerated. China's low-cost economic era has come to an end. The current growth model, with over-dependence on the increase of input in such production factors as labour and capital, will be replaced by a pattern of economic development featuring upgraded industrial structure, quickened human capital formation as well as technological innovation. Obviously, the effects of population aging on human capital and technological progress will have special significance and impact, concerning the overall transformation of the pattern of economic development.

3.1 *Population Aging and Human Capital*

What is human capital? The concept can be traced back to Adam Smith, the nominal founding father of classical economics, who defined capital as 'all the skills learned by people in the society' in his *Inquiry into the Nature and Causes of the Wealth of Nations*. For workers, while learning costs money, it also yields return in the form of earning from work, it is, therefore, a kind of investment. In the 1960s, American economists Theodore William Schultz and Gary Stanley Becker first established a relatively complete Human Capital Theory. This theory has two basic views. First, the effect of human capital on economic growth far surpasses that of physical capital. Second, the core of human capital is to improve the quality of the population, and the focus of investment in human capital is education. Generally speaking, human capital refers to the value of knowledge, skills, experience and health acquired by people, while education is the primary means to strengthen human capital accumulation. Therefore, it is undoubtedly essential to know the impact of population aging on people's access to knowledge, skills, experience and the enhancement of health as well as how to increase the capacity for human capital accumulation by turning negative factors into positive impacts.

The practice of developed countries in terms of economic development and demographic transition shows that population aging often occurs when an economy relatively developed, considerable material wealth is available and sound economic and social systems are in place. In contrast, demographic transition was completed ahead of time in China mainly thanks to the family planning policy. At the turn of the century, when China became an aging society, the country was still not highly developed socio-economically, with per capita income of only 1000 USD. Nevertheless, according to figures released by the World Bank, when developed countries entered the aging stage, their per capita income had already reached more than 5000 USD, with some even reaching up to 10,000 USD. Therefore, China is a typical case of 'getting old before getting rich'. As population aging will certainly

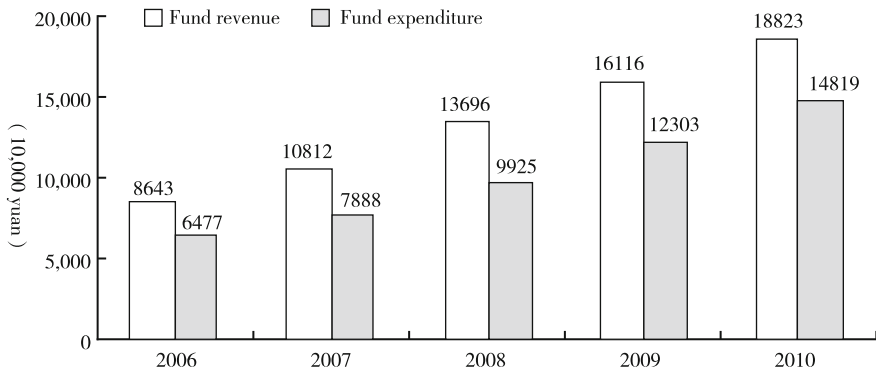


Fig. 3 Revenue and expenditure of social insurance fund from 2006 to 2010

have a huge impact on the government's public expenditure, the government has to invest a significant amount of social capital on establishing endowment insurance, medical insurance, subsistence allowance insurance systems and other social security systems. The OECD forecasts that from 2000 to 2050, population aging will result in an increase in social expenditure on the elderly from 19 to 26% of GDP, half of which on pensions and the other half on medical care and health.

With pension replacement rates remaining unchanged, the higher the degree of population aging, the higher the contribution rate to active employees' pension funds. The situation in China over the past five years is illustrated in Fig. 3.³

It is worth noting that a significant increase in the demand for health insurance because of population aging leads to increasing pressure on national financial payments, which affects the growth of investment in human capital. It affects not only the overall intellectual investment, which is realized through raising the social expenditure of the aging society, but also human capital investments like education, which is realized by affecting economic growth through productive investment. However, the negative impact of population aging on human capital investment mainly lies in the investment in education. Education is the main means of human capital accumulation, with families and governments as the main investors, so the higher the investment in education, the higher the level of human capital accumulation and vice versa. Parents' decisions on their educational investment in children, whether they realize it or not, always follow the principle of children's utility maximization; that is to say the marginal cost of raising children should be less than the benefits brought by children to their parents and families while the government's public spending on education depends on the externalities of education products and public preferences for education policies, which should follow the principle of public utility maximization. In the face of enormous pressure from population aging, it is inadvisable and short-sighted to transfer financial expenditure

³Source: *Statistical Bulletin of the Development of Human Resources and Social Security Cause 2010*.

from the education of young people to the social insurance of the elderly. It has long been explicitly proposed in the *Outline for China's Education Reform and Development* issued in 1993 that 'financial expenditure on education should account for 4% of GDP at the end of this century'. In fact, this goal could not be realized for a long time until 2013.

3.2 Population Aging and Technological Progress

Studies done by different researchers have reached different or even conclusions regarding the effects of population aging on technological progress. Some studies show that the elderly may not survive to benefit new technologies, yet they would still have to bear the costs in terms of opportunities and leisure necessary for their adoption. Many of them, therefore, reluctant to and resist adopting them. The elderly can be slow to keep up with the latest developments in knowledge and technology, and can become something of a drag on scientific and technological innovations. Others argue that the declining birthrate will result in labour shortages, which will boost investment in the next generation; therefore, population aging is conducive to technological progress. Obviously, both views are reasonable to a certain degree and when it comes to any individual country, specific analyses should be conducted. As for China, as was discussed earlier, the early phase of population aging known as the 'golden age' provides opportunities that are conducive to socio-economic development as well as technological progress while the later phase is just the opposite. However, we cannot reach a general conclusion like this. Apart from all the factors that are beneficial to technological progress, there are also unfavourable ones. The proportion and absolute number of the working-age population indicate a rising trend, leading to great employment pressure. Sometimes, the priority given to employment has to be secured at the cost of labour productivity, thus impeding technological progress. Besides, among all the unfavourable factors to technological progress, there are also favourable ones. A reduction in employment pressure along with a decreased supply of the working-age population leads to more reliance on the improvement of labour productivity and technological progress for socio-economic development, hence serving as a driver of technological progress. The key is to turn disadvantages into advantages and improve the quality of the labour force in order to counter the decrease in the size of the working-age population. On the one hand, we should increase investment in education, science and technology, culture, health and environment, enhance the quality of life of the population including the elderly and strengthen the accumulation of human capital. On the other hand, the situation of a decrease in proportion and absolute number of the working-age population and reduced employment pressure should be taken advantage of to greatly improve population quality, accelerate the modernization process and promote scientific and technological innovation.

3.3 *Elderly Human Resources Development*

The *Political Manifesto* passed in the Second World Assembly on Aging in Madrid, Spain in 2002 pointed out that ‘when population aging is regarded as an achievement, the dependence on the skills, experiences and resources of the elderly will be naturally treated as a kind of asset during the process of social development that is mature, fully-integrated and full of humanity’. This requires a transition in terms of both the cognition of and action on population aging.

3.3.1 Elderly Human Resources Development

In demography, the elderly population is conceived of as a non-productive labour force. This takes only age into consideration, and does not do justice to reality. In fact, many senior continue to work, i.e. by productive, particularly in China. Data from a sample survey provided by the China Research Centre on Aging in 2010 show that among all the elderly in urban areas, 0.6% were still working, 5.7% got re-employed, 7.2% participated in security patrols and 13.8% got engaged in volunteer work; in rural areas, 46.5% took up productive work of various kinds and 8.9% were engaged in industry and/or business. This indicates that elderly people, especially the relatively younger members of this group are still an active form of human capital.

With the extension in life expectancy and improvements in health, the reserve of elder human resources is also on the increase. Life expectancy has increased from 68.55 in the Fourth National Census in 1999 to 71.4 in the Fifth National Census in 2000 and 74.83 in the Sixth National Census in 2010 and is still increasing. In spite of the comparatively slow progress, the educational level of the elderly is improving steadily because those who are just entering the elderly age group have a higher level of education.⁴ The United Nations Second World Assembly on Aging introduced ‘active population aging’ as a policy framework in response to population aging in the twenty-first century. It stresses that all countries should endeavour to create the conditions for the elderly to reintegrate themselves into society and exert their skills so as to turn the pressure imposed by population aging on socio-economic development into an impetus for sustainable development, which is not only timely but also conforms to China’s actual conditions.

3.3.2 Developing the Senior Care Industry

To develop elderly human resources and encourage them to engage in jobs within their capacities requires the development of a senior care industry that can meet the physical and mental needs of seniors. The ‘senior care industry’ is comprehensive

⁴Source: *China Statistical Yearbook 2013*, p. 101.

and not isolated from other industries. It encompasses various sectors within the primary, secondary and tertiary industries with last one weighing the most. In recent years, the development of the senior care industry in China has enjoyed some progress, achieving rapid growth in the elderly service, senior housing, senior tourism and elderly supplies industries, with particularly fast growth in the elderly service industry. By the end of 2010, the number of senior care institutions of various kinds across China had increased by 233 to 39,904 compared with the previous year, with 3,149,000 beds and serving 2,426,000 seniors housed, an increased of by 9 and 6.6%, respectively.⁵ However, there is still a huge gap between the development of the senior care industry and the actual needs of the elderly, indicating that this industry is still in its infancy. First, the senior care industry is on a small scale and underdeveloped, with backward technology and limited capacity to provide job opportunities. Second, the development of the elderly service industry lags behind, generating tension between supply and demand. For example, currently, the total number of people who can be accommodated by elderly service institutions only accounts for 1.7% of the total elderly population, which is not only 5–7% lower than that of developed countries but also 2–3% lower than that of some developing countries. Third, the senior care industry demonstrates uneven levels of development in urban and rural areas as well as among different regions, with shortages of beds and vacant beds existing at the same time. Fourth, there is a narrow channel of funding and an inadequate amount of capital investment, resulting in restricted development of the senior care industry.

Recommendations on how to accelerate the development of the senior care industry are listed as follows. First, integrate the senior care industry into the overall planning for socio-economic development and the directory of state-supported industry, determine the areas needing prioritized development and ease the contradictions between supply and demand in a practical way. Second, improve investment and other preferential policies in order to strengthen support for the elderly service industry and other related industries. Third, determine the leading pillar industry at the current stage and make use of its exemplary role to promote the comprehensive development of the senior care industry, mainly including the home-based care and community-based care service industry, the private elderly service industry, senior product development, senior tourism industry and so on.

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⁵Source: *Statistical Bulletin of the Development of China's Aging Cause 2010*.

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