Chapter 4
The Trailblazer in the Era of Longevity—Japan

The previous chapters present a panorama of the era of longevity, health and wealth. In this chapter, we turn our eye to the real world and seek a sample for observation and analysis. Japan, globally speaking, is the first country to enter the era of longevity. If the threshold of the longevity era is when the population aged 65 and over takes up 25% of the society, Japan has met the standard as early as 2014, and the proportion even increased to an astonishing 28.7% in 2020, ranking top in the world. Japan represents a typical country in the era of longevity, and it presents a great sample and subject for observation as it is undertaking profound social and economic changes. Analysis of these changes could provide valuable foresight for China in its future policy making.

Observing and studying Japan have inspired me a lot in starting and managing a business. When I visited Japan in the early 1990s, I saw signs of insurance companies line up on the streets of Tokyo, and I made the resolution to start a life insurance company. Later, in 2017, when I set my mind to set foot in the elderly care sector, I led my team to Japan again to draw experiences. Every time I visit Japan, I was greatly shocked by this rapidly aging country, where many taxi drivers and salespersons at convenient stores are older persons, a picture totally different from China. Both being East Asian societies, Japan could be a mirror that reflects what China might look like in a longevity era, thus offering some ideas for China on how to cope with the shock waves of the aged population in advance and on how the elderly care sector might evolve.

4.1 An Impression of Japan

If you sketch in the streets in Japan, one special scene would be the gray-haired elderly. Some of them rush to the subway to work, some choose a more stable job and drive taxis to make a living, and very few have some moments of leisure to spare. According to the data of the Ministry of Health, Labor and Welfare of Japan

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in 2017, the average age of taxi drivers in Japan is as high as 59. They dress neatly to greet passengers and get off voluntarily to help passengers with their luggage, which embarrasses many young travelers to Japan. Grandpa taxi drivers and grandma waitresses are typical examples of how older persons in Japan participate in the job market. Japan recently proposed to raise the retirement age from 65 to 70, and its society welcomed a culture of life-long job participation. Those are guarantees for the elderly to be employed on the one hand, but on the other hand, they could also be deemed a helpless move taken by the government when there is no other option. If you focus on this specific cohort and look back into history, you can find that they were born after the Second World War and are known as baby boomers. From 1947 to 1949, an average of 2.7 million babies were born in Japan every year. This generation is also called the "Dankai" generation, who had seen the golden age of Japan's postwar economic recovery and witnessed the withering years of economic recession.

In the process of economic development, the demographic dividend in Japan quickly came to a halt and was replaced by population aging. From 1964 to 1994, the proportion of the population aged 65 and over in Japan rose from 6 to 14% step by step in 30 years. In the following 25 years, the proportion quickly doubled and exceeded 28% in 2019 (see Fig. 4.1). The rate of aging is much faster than that of developed countries in North America and Europe. According to Japan's Statistic Bureau, the population aged 65 and over in Japan hit an astonishing number of 36.17 million in 2020, accounting for 28.7% of the total population. China is forecasted to hit Japan's level by the mid-twenty-first century.

According to Guinness World Records, the Japanese basically took all records of the longest living persons, which is a proud boast of Japan. Kane Tanaka is recognized by Guinness World Records as "the oldest living person on earth". In 2021, when she ages 118, she has been actively preparing for the Tokyo Olympic

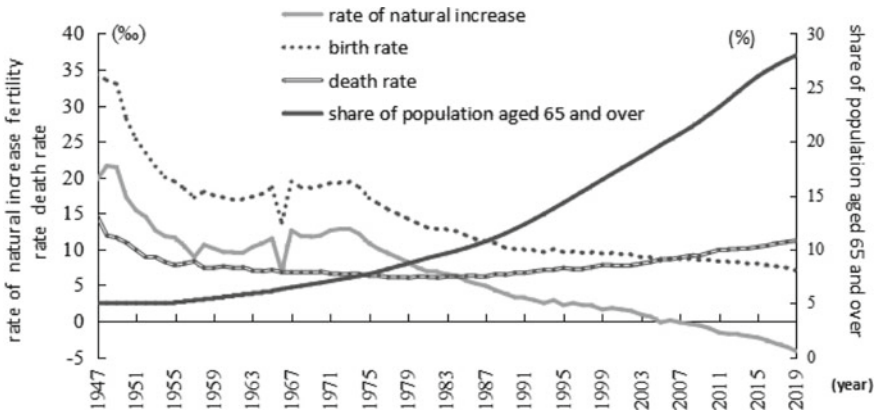

Fig. 4.1 Rate of natural increase, birth rate, death rate, proportion of the population aged 65 and over in Japan. *Sources:* The Wind Economic Database, the World Bank

Games torch relay (she withdrew from the relay for concerns over spreading coronavirus). According to data released by the Japanese Ministry of Health, Labor and Welfare in September 2020, there are more than 80,000 centenarians in Japan, and they would all receive certificates and silver trophies from the Prime Minister. Since 2013, Japan has been one of the countries with the longest life expectancy, which could be attributed to Japan's effective and high-quality health management. Taking cardiovascular diseases as an example, data from the World Health Organization in 2018 show that the mortality rate of coronary heart disease in Japan was only 32/100,000, the lowest in the world. Among males aged 55–64, the death rate of Japan is not even a tenth of that in the United States.

Unlike the relatively flat death rate, Japan's birth rate decline has been salient. Over the 40-year span from 1947 to 1990, the birth rate dropped from 34 to 10‰. The fertility rate has remained low for 30 years, resulting in the first negative population growth in 2005. In 2019, the birth rate fell to 7‰, and the rate of natural increase decreased to −4.2‰. In 2020, the number of newborns in Japan was less than 850 thousand, a record low in history. In terms of the total fertility rate, in the past 10 years, it stagnated at approximately 1.4. Despite a slight rebound, Japan has been mired in the low fertility trap.

The surprisingly dramatic changes in Japan's population age structure set the alarm bell ringing for the world that the era of longevity might come more quickly than expected. Due to the persistent low fertility rate and prolonged life expectancy, the median age of Japan's population jumped from 25.4 in 1960 to 48.4 in 2020. The age structure shaped an obvious inverted trapezoid, and the population is increasingly aging. In the era of longevity, the employment structure in Japan has seen tremendous changes too, with an increasing number of older persons entering the low-end part-time job market, especially in labor-intensive industries such as wholesale, retail trade and catering. In 1975, the 60-plus cohort accounted for only 9.2% of the total population, whereas after 2000, the proportion remained at approximately 20%, and the size of the elderly employed doubled compared with that in the late 1980s. Japan has been contemplating passing a series of policies and acts[1] to ensure the employment of elderly individuals. A higher employment rate enables older persons to improve their quality of life when their savings run low. Delayed retirement age has helped ease Japan's fiscal pressure.

As the population age structure changes, a phenomenon in Japan emerges called "shopping refugee". In approximately 2000, the competition among retailers in Japan intensified. Meanwhile, commercial facilities became larger, and private cars became more available. As a result, commercial facilities have relocated to suburban areas. There is a smaller number of commercial facilities close to home, forcing people to

[1] Such as the "Act on Social Welfare for the Elderly" (1963), "Act for Promoting Employment of Middle-aged and Older Persons" (1970),"Act Concerning Stabilization of Employment of Older Persons"(1986), "Subsidy to Promote Continuous Employment of Older Persons"(1998), "Act on Stabilization of Employment for Elderly Persons" (2004), "Amendment to the National Pension Act", "Law for Facilitating the Creation of New Business"etc. To promote employment by raising the statutory retirement age and pension eligibility age, increasing subsidies for enterprises, and encouraging the elderly to start businesses.

travel a long distance to shop. In this regard, the Ministry of Land, Infrastructure, Transport and Tourism of Japan refers to "older residents who want to shop in stores within a diameter of 500 m, but cannot do it due to reality conditions" as "shopping refugees".

The realities of employment and consumption have also brought deeper social problems. In 2014, Japan's NHK TV station compiled and published a book called "*Unrelated Society*". Through a two-year investigation, it traced the life trajectories of the deceased and determined how they came to the tragic end of "dying a lonely death". "*Lonely Death*" is a term coined in Japan, which is a reflection of Japan's aging society and the lonely status of elderly individuals, referring to the phenomenon that some older persons living alone die long before someone finds out about their death. They live in a so-called unrelated society, where they have no geographical, blood and professional ties. They die alone with no one claiming the body. Such death is also called "unrelated death". The cause of a unrelated society is the collapse of geographical and blood-centered communities that follows industrialization and urbanization and the rupture of professional ties resulting from the end of the lifetime employment system and worsening population aging. Governments and societies must respond to the problem quickly and create new bonds.

In terms of social stratification, Japanese society has shaped like an M, hollowing in the middle part, which reveals a dwindling middle class. The once "100 million middle class"[2] with smaller income disparities shrinks; instead, some middle class sinks into poverty, and the gap between rich and poor people further widens. It is a result of a deteriorating employment environment, an increasing unemployment rate and rising difficulties in finding jobs in economic downturns. Upon entering the twenty-first century, the employment system was reformed. An increasing number of businesses abolished life-time employment and started to adopt informal employment. The employees' expectations for welfare benefits and career stability were compromised. A disappearing middle class has had a longstanding negative impact on Japanese society, one marked trait of which is low desire. Residents take a dire outlook for life and lack ambition, with no desire, dream or motivation, and the *hikikomori* (isolated) population surged. They do not go to school or work, do not engage in social activities and stay confined to their homes without interacting with the outside world. According to a survey conducted by the Japanese government in 2015, there were 541,000 *hikikomori* among young people aged 15–39 and 613,000 among middle-aged to older persons aged 40–64. To respond to the low fertility rate and an aged population, Japan has started to call for positive voices. For example, in 2018, Japan proposed the goal of building an "ageless society" in the *Outline of Countermeasures for Aging Society*, which points out that the popular notion of defining people aged 65 and over as "the elderly" did not keep up with reality, and it is necessary to change the division of life into distinct stages based on chronological age. In an ageless society, people are not categorized by age; rather, they are free

[2] "100-million middle class" (いちおくそうちゅうりゅう, or 100 million all in the middle class) is a national awareness emerge in Japan in the 1960s and trending in the 1970s and 1980s. With life-time employment system, 90% Japanese consider themselves as middle class.

to choose their lifestyles as they please and as their abilities permit. By building an ageless society, the Japanese government expects to take advantage of the knowledge, skills, expertise, life experiences and wealth accumulated by older residents to create value. In the private sector, some with vision initiated the *New Elder Citizen Movement.* According to Shigeaki Hinohara, a doctor described as a national treasure of Japan, new elder citizens are healthy older persons aged 75 and older who are capable of taking care of themselves and continuing to work. The *New Elder Citizen Movement* has made a huge difference in changing stereotypes and redefining older persons.

4.2 Where is the Japanese Economy Heading?

Demographic Shift Throughout the "Lost Decades"

From the end of the Second World War to the 1970s, the Japanese economy saw a golden period of robust development. Its rise challenged the interests of the United Sates, which started a trade war with Japan that lasted for 30 years. The United States government later negotiated for the appreciation of Japanese yen with the Japanese government in the name of resolving the U.S.-Japan trade deficit. It ended with Japan's signing of the *Plaza Accord* in 1985. Since then, the Japanese yen appreciated sharply and took a huge toll on Japan's exports. The Japanese government responded by cutting the interest rate as an effort to stimulate the economy. From 1986 to 1989, a large amount of hot money poured into Japan, which fueled speculation and drove up the stock market price and real estate price, creating a huge economic bubble. As the bubble inflated, the Japanese central bank hiked interest rate five times in a row as an attempt to burst the bubble deliberately, which plunged the stock market and real estate market. Japan's economy later entered a period of low growth for as long as 30 years, which is called the Lost Decades.

Sustained weak economic performance in Japan is a result of a myriad of factors. In the 1990s, both investment and consumer demand fell sharply. In the meantime, Japan's politics saw several upheavals as the prime minister came and went one after another, and the country lacked effective reforms. With little confidence in the economy, Japanese businesses aimed to minimize debt instead of maximizing profit and chose to repay the debt rather than reinvesting, causing a balance sheet recession that lasted for 15 years. When the balance sheet recession finally ended, demographic changes and institutional failures stalled technological advancement and innovation, and Japan failed to catch up with the tides of the mobile internet. Further worsened by faltered global demand after the financial crises, Japan's economy suffered sustained sluggish growth.

In the early stage of the downturn, many researchers attribute it to the financial crisis that follows the bubble burst. However, financial crises usually last for 2–4 years. Even in the case of the Great Depression in the 1930s, the worst financial crisis recorded in history lasted only for 12 years. In Japan's case, the economic depression lasted for a long time. It is widely believed in academia that recession is

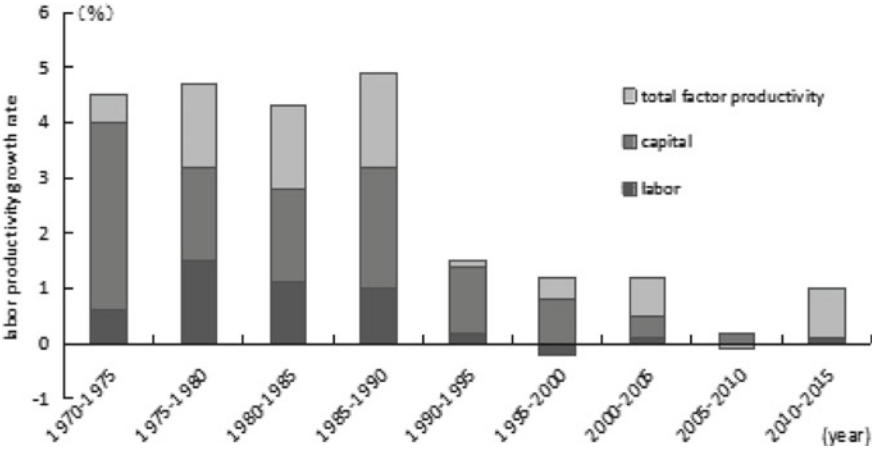

Fig. 4.2 A breakdown of Japan's economic growth contributor at different times. *Source*: Asian productivity organization, APO productivity databook 2019

closely linked to aging. There are problems emerging in Japan, such as lower labor supply, slowdown in technological progress, declining capital formation and heavy national fiscal burden. The drag of aging on the economy could be clearly observed.

The Shifts of Three Leading Factors of Production

Based on the role of labor, capital and technological advances,[3] the three main factors of production contribute to the growth of GDP, and both labor and technological advances are significantly affected by demographic changes (see Fig. 4.2). From 1985 to 1990, the shares of contributions from labor and technology to GDP growth were 1% and 1.7%, respectively. However, the contribution of the two factors continued to drop for 30 years after that, even to negative values at some point, and never rebounded. The contribution of capital to GDP growth did not decline as much as the other two factors, as it remained a strong contributor to the economy until the late twentieth century. However, it has played a smaller role since the financial crisis hit in 2008.

In terms of labor, a factor of production, as the older population grows, labor shortages have become prominent in Japan. As labor force growth slows down or even becomes negative, it is highly likely that factories and businesses will be shorthanded, which in turn will adversely impact economic development. According to the statistics from Tokyo Shoko Research, a private corporate credit research agency, in 2019, there were as many as 426 companies that were indebted as much as 10 million Japanese yen and ended up in bankruptcy due to a "lack of manpower", an increase of 10% year-on-year, which is also the highest in record since manpower was included in the research.

[3] Technological advances are often measured by total factor productivity, which is the productivity of all productive activities in a period of time. It is a productivity indicator, a measure of output as relative to all the inputs.

An aged population also weighs on Japan's labor productivity, more so in labor-intensive industries than in capital-intensive ones. Taking wage level as a rough measure of labor productivity, the hourly wage in Japan in the past 20 years has fallen by 9%. Japan's wage level is not just lower than the average of OECD countries; worse still, the gap continues to widen. While changes in industrial structure (such as the importance of the service sector rising) also lower labor productivity, it is undeniable that the aging labor force played a major role in the widening gap between Japan and other countries.

Of course, there have also emerged many positive elements in Japan to offset the fall in the labor force. First, automation and the robotic industry have become an important countermeasure of a shrinking labor force. Japan's robotic has flourished as spurred by the era of longevity and has now become a veritable global superpower, taking up the lion share of the industry. Second, there is a rising participation rate of the elderly in the labor force. As of the end of 2020, the labor force participation rate of the elderly over 65 in Japan has risen to 25.1%, which means that one-quarter of the elderly are still participating in the labor force. Japan has entered the retiring phase at 70. Although it has not been made mandatory to retire at age 70, past experience indicates that the Japanese government is highly likely to push for it. Japanese labor economist Atsushi Seikei once calculated in *Financial Gerontology* that if most elderly people work until the age of 69 and start to receive pension benefits from then on, the trend of declining labor force might be kept at bay.

In terms of capital as a factor of production, the life cycle theory suggests that the older population is a consumption-oriented cohort. The higher the proportion of the elderly is in the total population, the greater there is to share the total output, which will drive up consumption and drag down savings at a macro level. In 1970, elderly individuals aged 65 and above accounted for 7% of the total population, which is the onset of population aging. One of Japan's characteristics at that time is high savings, with a national savings rate at approximately 40%, higher than the world average. After that, Japan's national savings rate has been on a downward slope, dropping to 28% in 2018 (see Fig. 4.3). The decline in the savings rate in Japan is in line with the life cycle theory. Micro research data have also shown that Japan's residents save the most in their 30s–50s and the least when they age over 65 and then take a turn to negative savings in their 70s. Judging from the rate of return on capital (by direct observation in comparison with interest rates), Japan's experience shows that an aged population puts downward pressure on interest rates because the price of funds (which is the interest rate) falls when savings supply exceeds investment demand for a long time. The contribution of savings and investment as a share of GDP have both declined in Japan since 1970. Since 1990, investment has fallen at a sustained faster pace than savings in Japan. The interest rates went down accordingly, entering the phase of zero interest rate after 1999. Since 2016, Japan's central bank has even imposed negative interest rates on new reserve accounts of commercial banks. The low interest rate environment has undoubtedly put much pressure on investment.

In terms of technological advances, another factor of production, even though Japan still stays ahead in high-end manufacturing, it has obviously been left behind in the waves of mobile internet after the financial crisis in 2008. The list of 500

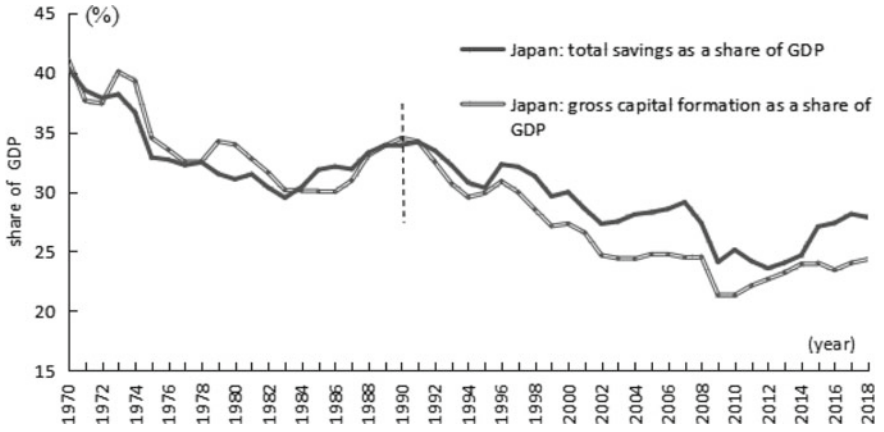

Fig. 4.3 Savings and investment in Japan from 1970 to 2019. *Source:* The World Bank

global unicorn companies in 2019 shows that unicorn start-ups in China and the United States account for 73% of the world's total. Only 3 are in Japan, all small ones with a valuation of approximately 1 billion to 2 billion US dollars. Japan ranked lower than India (with 19) and South Korea (with 9) and was even outnumbered by Indonesia (with 3). Generally, people are most active in innovation in their youth. When the older population grows as a percentage of society, technological innovation and entrepreneurship inevitably come under pressure. Globally, the higher the old-age dependency ratio is in a country, the lower the share of contribution from unicorn companies to the total GDP (see Fig. 4.4).

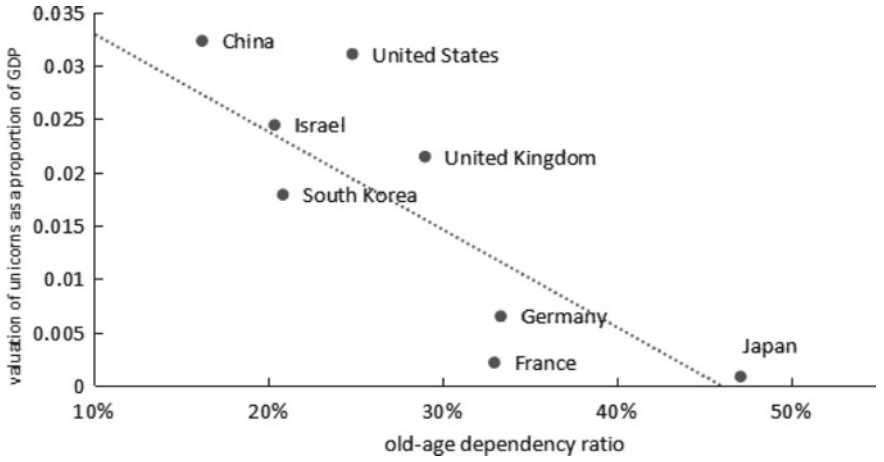

Fig. 4.4 The correlation between unicorn valuations to GDP and old-age dependency ratio. *Source*: The World Bank, CB Insights database, author's calculations

There is a view that the labor and HR policies in Japan hinder innovation. The lifetime employment system and the seniority-based wage system[4] are widely accepted in Japan's labor market and once played a significant role in stabilizing employment and promoting economic development during the postwar period. However, as aging became prominent, such systems have in turn hampered innovation. Businesses are redundant and unable to eliminate an excessive labor force; outstanding young talent moves slowly on the career ladder, with their abilities and willingness to innovate restrained. Japan has been reforming to unleash the innovation "potential" in the economy. Well-known companies in Japan's Information and Communication Technology (ICT), such as Nippon Electric Corporation (NEC), Sony, and Fujitsu, have begun to reform their wage system, abolishing the seniority-based wage system and matching job grades and wage levels to one's abilities and performance. Although demographic changes could hold back innovation, it is the environment and institution that make the difference in generating innovation. Perhaps for Japan, fundamental system reforms and creating a level playing field conducive to the free flow of factors of production are ways to better unleash the innovation potential in the economy.

The Shifts in Industrial Structure and Consumer Behavior in Japan

Postwar Japan experienced a shift from industry to services. During the economic recovery after the Second World War, steel, electricity, automobiles and electrical appliances, among energy and heavy industries, became the dominant industries fueling economic growth. The global energy crisis hit in the 1970s led to Japan's upgrading from energy-intensive industries to energy-efficient and technology-intensive industries with high added value. In the 1980s, Japan officially put forward the slogan of "building a country with science and technology", and technology-intensive industries such as precision machinery, microelectronics, integrated circuits and new material began to enter a booming fast-track.

Industrial upgrading increased per capita income and brought out the transformation of consumption patterns. Japan's per capita exceeded US$ 10,000 in 1981 and quickly doubled to over US$ 20,000 in 1987. During this period, the contribution of the service sector to the economy continued to rise, and the manufacturing of consumer goods such as automobiles and electrical appliances thrived.

The burst of the economic bubble and severe population aging in the 1990s plunged Japan's economy to a long-term downturn, holding back its industrial upgrading. One consequence is that Japan was taken over by the United States in high-end technology competition, most typically, in information technology. Japan's competitiveness fell sharply. However, during this stage, the proportion of the service sector in Japan's GDP maintained a steady upward trend. According to data in 2018, the service sector contributes nearly 70% to Japan's GDP, and to further break it down, the technology and health sectors have embraced explosive growth, accounting more and more in the economy (see Fig. 4.5).

[4] Seniority-based wage system first started in the beginning of twentieth century. It is a wage system Japanese businesses use to increase employees' wage annually based on their age, length of time in the company and education level etc.

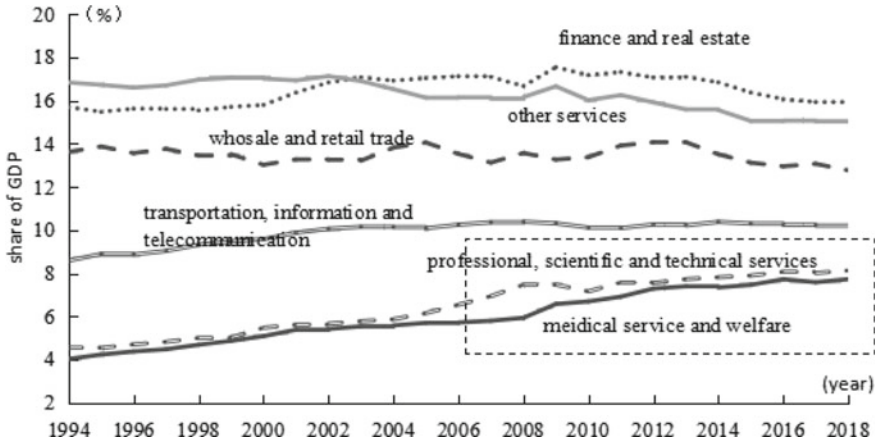

Fig. 4.5 Share of different services industries in gross domestic product (GDP). *Source*: Cabinet Office, government of Japan.. *Note*: The data only include services industries in the tertiary sector of the economy

As the service sector becomes increasingly important in the economy, its intrinsic problems have started to manifest themselves. Since the productivity level in the service sector is lower than that in manufacturing, the increase in services' share of GDP entails drag on the productivity of the economy. Renowned economist Baumol concluded that it is the "cost disease" of the service sector. The key to curing the problem lies in increasing productivity through innovation.

The dawning of the era of longevity has stimulated the boom of automation, artificial intelligence and health services in Japan. As the population becomes increasingly gray, it is an irreversible trend that robots and artificial intelligence would replace some human labor as there is a shortage in human resources and health care professionals. In terms of robot supply, Japan delivers approximately 50% for the world. Benefiting from Japan's top-notch automation clusters, coupled with intensive ways of production, a large number of world-renowned companies emerged, such as Mitsubishi, Panasonic, Keyence and Fanuc. The trend of aging has also stimulated Japanese consumers' demands for health products, which pushes for the betterment of Japan's health sector to become the industry benchmark. The spending on health as a share of GDP in Japan rose from 4.4% in 1970 to 11.1% in 2019, a relatively high level among OECD countries. The quality of medical treatment in Japan is high, and medical technology leads the world in many areas. As the government, industry and businesses cooperate and adapt, Japan has seen a mature elderly care industry set in place, covering the needs of the older population, such as medical treatment, elderly living, commodities and services for elderly individuals.

We could also have a picture of how industries and consumption evolve in Japan by observing the stock market. First, we locate the ten highest-priced stocks traded on the Tokyo Stock Exchange in 1993. At that time, the economic bubble just burst, and most companies with high market capitalization are large banks and the leading

companies in automobiles, electricity and telecommunications, where Japan has the edge. Toyota, Tokyo Electric Power Company (TEPCO), Nippon Telegraph and Telephone (NTT), to list a few. By 2020, it is a completely different scenario with the ten highest-priced stocks (see Table 4.1). Banks have disappeared from the list and have been replaced by leaders in electronic information, automation (such as Sony, Keyence) and medicine and healthcare (such as Takeda, Daiichi Sankyo). Based on the ups and downs in the stock market, industries in which Japanese stocks have fallen sharply in the past 30 years include cyclical industries such as finance, materials, and construction. Stronger performers are those in the pharmaceutical, consumer goods, some fields of electronics, and service sectors. The change in the makeup Japanese stock market is also consistent with our observations at the macro level.

The era of longevity sent shockwaves through finance and the real estate market in Japan. There once was a time when financial companies took up the lion share of the list of the top ten companies with the highest market capitalization. However, with the rate of return on capital down and with a zero or negative interest rate, the financial sector in Japan is faced with a grim market environment. For insurance companies in particular, lower interest rates would lead to spread losses, which would have a significant impact on the assets and liabilities of insurers and even drive them into bankruptcy in serious cases, jeopardizing the entire industry. From 1997 to 2001, nine Japanese insurers closed down one after another. Among the top ten large companies by market capitalization in Japan, it is difficult to find a bank or insurer.

Table 4.1 Top ten stocks by market capitalization in Japan in 1993 and 2000

Top ten stocks by market capitalization in Japan				
Number	1993		2020	
	Company name	Industry	Company name	Industry
1	MUFG Bank	Finance	Toyota	Automobile
2	Industrial Bank of Japan	Finance	Sony	Electronics
3	Toyota	Automobile	Softbank	Telecom
4	Sumitomo Mitsui Banking Corporation	Finance	Keyence	Electronics
5	UFJ Banking	Finance	Nintendo	Software
6	The Fuji Bank	Finance	Nippon Telegraph and Telephone	Telecom
7	Daiichi Bank	Finance	Takeda	healthcare
8	Sakura Bank	Finance	Nidec	Electronics
9	Tokyo Electric Power Company	Electricity	MUFG financial corporation	Finance
10	Nippon Telegraph and Telephone	Telecom	Daiichi Sankyo	Healthcare

Source: Bloomberg

Real estate is another market that took a heavy toll in the era of longevity. It is widely known that Japan's real estate market bubble burst in the 1990s, the reasons behind which include the sharp rise of the Japanese yen exchange rate and subsequent policies mistakes from the central bank, but the root cause is the changing demographic structure. The agglomeration of the labor force plays a huge role in pushing up real estate prices. American scholar Harry Dent points out in the book *Population Cliff* that consumers' demand for houses runs through their whole life, peaking at their golden age from 27 to 41 years old. Once the demographic structure undergoes major changes, the landscape and growth model of the real estate market would also face adjustments. As Japan's baby boom recedes, a low fertility rate persists, and the population ages quickly. In addition, many young people do not have a stable job and are unable to afford purchasing a house. A series of demographic factors have led to the price falling in the real estate market and plunging it into stagnation. The price fall started in 1991 and lasted for an entire 15 years until 2006. During the time, many people made the purchase under the false assumption that the price has bottomed out; however, it turned out that the price was just in the middle of the dive. For another 15 years starting from 2006, the real estate price has seen ups and downs, only climbing slowly back to half of the peak price in 1991.

Japan, in the era of longevity, has ushered in the golden age of elderly consumption. Statistics from the Japan Bureau of Statistics show that the consumption of households aged 60 and over accounts for 48.8% of the total, and the number was only 29.9% back in 2000, which means that it rose by 19% in approximately 20 years, 8% points higher than the increase in the share of the older population in the same period. The elderly in Japan prefer to buy healthy food, and there is a growing demand for convenient life services such as nursing and care. The healthy older population is enthusiastic about leisure tours. As the mobile internet develops by leaps and bounds, older persons have become a major force of online shopping. According to a survey on household consumption by the Japanese Ministry of Internal Affairs and Communications, 31.2% of the 65-plus elderly used online shopping in 2020. The Japanese society also invested a lot in developing consumer goods and services that cater to the needs of elderly individuals, separating them from regular goods and services.

The Japanese government has given much thought into institutional arrangements to safeguard the interests of elderly individuals. In addition to setting stringent standards on the hygiene and safety of related goods and restricting market access, Japan has also adjusted laws to protect older consumers and promote the food industry. Japan's experiences suggest that government and businesses could work hand in hand in taking action to unleash the consumption potentials of elderly individuals. It is the combination of high-quality and smooth corporate supply, maturing government policies and sensible consumption philosophies of the elderly that enables Japan's value chains for elderly consumption to stand at the forefront of the world. Revitalizing and reshaping the consumption of the elderly is becoming a new trend in the Japanese business sector.

4.3 Is the Era of Health and Wealth Around the Corner for Japan?

Standing on the Doorstep of the Era of Health

Unlike the economic performance in the lost decades, Japan boasts its achievement in the health industry, where Japan has maintained the top class. In the health reports released by the World Health Organization, Japan has ranked top for many years because of "high average life expectancy", "high-quality medical services" and "equitable distribution of medical expenditure burden".

These achievements must be attributed to the experiments and improvements the Japanese government made in healthcare that have been going on for half a century. As early as 1978, Japan's Ministry of Health, Labor and Welfare first launched a national health management program, which includes key measures such as promoting health check-ups and increasing the number of public health nurses and nutritionists. Ten years later, the upgraded version of the national health management program was launched, which established a health check-up arrangement for elderly individuals, specified a regional health center, and strengthened the training of health and exercise instructors. In 2000, the Ministry of Health, Labor and Welfare proposed a national health management plan for the twenty-first century (referred to as the "Healthy Japan 21 Plan") that is to be carried out nationwide from 2000 to 2010. Later, in 2002, the Japanese government passed the Health Promotion Act, which provides a legal framework to promote national health.

It is easy to find that health check-ups have always been high on the agenda of Japan's national health management programs for many years. Almost all hospitals, large or small, have health examination departments. There are government-funded health management centers in every city responsible for providing comprehensive health management services for local residents by working together with local public hospitals and university-affiliated hospitals. The main job for such centers is to perform regular health examinations. Every center is equipped with sophisticated health check-up machines, such as MRI machines (to check the condition of the brain and blood vessels), CT machines (for early detection of lung cancer), ultrasonic diagnostic machines (for examination of the liver, spleen, kidney, arteries, etc.), and a physical component analysis machine (for examination of bones, fat, and muscles) to provide accurate health check-ups. In recent years, medical tourism has drawn much attention in China. Receiving cosmetic surgeries in South Korea or health examinations in Japan has become popular tourist attractions, which in another way indicates that Japan has won wide recognition in the field of health examination.

If we compare health examination as the vanguard of the Big Health Industry, the three engines or horse carriages of it are medical care, medicine and medical insurance. The demand in the elderly care market could be seen as the accelerator, speeding up the setup of all-round services in the industry to cater to the needs of elderly individuals.

In Japan, medical care services are mainly provided by private hospitals and individual physicians. According to data from the Ministry of Health, Labor and Welfare of Japan, in 2018, there were 8372 hospitals in total in Japan, with 81.1% being private hospitals; there were more than 100,000 nondental clinics and nearly 70,000 dental clinics, and 95.5% of the clinics were private. Private clinics and outpatient departments of private hospitals are the main healthcare service providers, while hospitals that qualify as "advanced treatment hospitals" defined by the Ministry of Health, Labor and Welfare are mainly public teaching hospitals and some large specialized hospitals. Data from the Ministry of Health, Labor and Welfare of Japan show that in 2018, the number of hospital beds in Japan reached 1.64 million, and the number of hospital beds per 1000 people was 12, top in the world. Japanese people prefer going to small clinics when they get sick, instead of going to big hospitals like we do, mainly because most doctors in small clinics are also famous doctors. Japan implements a free-access system for medical institutions to perform practice, and professors from private medical universities in Japan and doctors from major hospitals are allowed to sit in clinics other than being confined to only their own schools or hospitals.

While taking on the problem of healthcare availability, Japan also tackles the problem of healthcare accessibility by providing universal coverage of health insurance. Since 1961, Japan has started to implement the national health insurance system and national pension system. Despite an aged population, Japan has reached a relatively wealthy stage in terms of its economic and social development and has put into place a universal social security system that provides universal health insurance and pension. After the 1980s, with the introduction of the Golden Plan (*the Ten-Year Plan for the Advancement of Health and Welfare for the Elderly* launched in 1989) and the New Golden Plan (the *Ten-year Plan for the Advancement of the Health and Welfare of the Elderly* launched in 1994), medical care systems for retirees and for elderly in the late stage of life (for people aged 75 and over) were successively implemented, completing a comprehensive social security system as a response to population aging. At present, the out-of-pocket payment patients bear for receiving health care in medical institutions is different and varies according to their age and income. Generally, those aged between 6 and 70 have a copayment of 30%, and those aged between 70 and 74 have a copayment of 20%, while for low-income patients aged above 75, the copayment is 10%. In the cases of major disease, there is a cap set for high medical cost in the healthcare insurance system, which means that according to the patient's income, a ceiling charge amount is set for the payable copayment. When the upper limit is hit, patients could apply for a reduction or exemption in advance or apply for a reimbursement from the insurance agencies afterwards. In this way, the copayment patients bear from receiving treatment of major diseases would not take up too much of their income, avoiding illness-induced poverty.

In addition to the universal healthcare insurance system, Japan has also implemented a nursing care insurance system, also known as long-term care insurance. Japan began to formulate a law in 1997 and implemented the Long-term Care Insurance Act in 2000, providing elderly individuals with a suite of services ranging from daily living activities to rehabilitation care through the insurance system. The cost

is split by half; one half is borne by the central and local government, and the other half is borne by individuals and employers. All persons start to pay long-term care insurance premiums at the age of 40 and can access the services at the age of 65. The long-term care insurance system further secures the payment ability of the elderly to stay healthy.

With a sound social security system in place, deregulation was not started by the Japanese government until in 2001 to allow life insurers and nonlife insurers to offer medical insurance and healthcare insurance products, which marked the official start of Japan's commercial medical insurance. However, private health insurance plays a complementary role, mainly to compensate for the copayment patients bear in the national health insurance plan or to cover the expenses that public health insurance does not cover. Private medical insurance offers savings-type critical illness insurance products such as cancer insurance. However, because of the generous benefits and coverage of Japan' public health insurance, demands for private health insurance are squeezed. In 2018, Japan's private health insurance accounted for only 3% of total expenditures on health, while public health insurance accounted for 84%.

In addition, there are almost no direct transactions between private health insurers and medical institutions in Japan, resulting in private health insurance products having no direct impact on the allocation of medical resources, let alone cutting the expenses for the insured or improving the quality. This is a distinctive difference between private health insurance in Japan and in other advanced economies. However, population aging has also created unique market opportunities for private health insurance. In 1990, Japan gradually opened up its private health insurance sector and nursing service market. Private health insurers could set up nursing care institutions as long as they meet the criteria. On the one hand, such institutions could receive payments under the long-term care insurance scheme covered by the government; on the other hand, by offering private long-term care insurance products, the insurer could enjoy more complementary benefits.

In the 1990s, Japan achieved the separation of drug prescribing and dispensing services by medical system reform and adjustment of health insurance payments, severing the collusion between doctors and pharmaceutical suppliers. This did not stop Japan from growing into the world's second largest pharmaceutical market. As early as the 1970s, Japan invested hefty money in pharmaceutical R&D. Drug development in Japan started with the production of follow-on generic drugs (*me-too drugs*), which are based on the chemical structure of first-in drugs. By modifying some chemical compositions, new molecular structures could form without affecting the pharmacological mechanism of action and targeting of the preexisting drugs. Since the 1980s, the Japanese government has imposed control over drug prices. The price of a new drug was cut by 5% every year since its launch on the market, which has been a huge driving force for pharmaceutical companies to engage in R&D. In the 1990s, Japan lifted all restraints on the drug market, and Japanese pharmaceutical companies started to build their supply chain, putting an end to the chapter where they were "squeezed" and "exploited" by European and American competitors. Upon entering the twenty-first century, Japan put forward the strategy

of building a biotechnology economy and released a series of polices to encourage innovative drug R&D domestically.

Takeda is a representative of Japanese pharmaceutical companies. Established in 1781, Takeda has had a history of 240 years. It started off by selling traditional herbal medicine and generic drugs, reaping huge profits. In recent years, it has shifted its focus to drug R&D in four core fields, namely, tumors, rare diseases, digestive system diseases and neurological diseases. It has also made inputs earmarked for blood products and vaccines. In 2020, Takeda ranked seventh by market capitalization in Japan's stock market. Boasting a revenue of $30 billion, it ranked tenth among the top global pharmaceutical companies in 2020 and first among the top Asia pharmaceutical companies, becoming one of the global front-runners in the biochemical sector. It is also worth mentioning that Japan is also a strong player in basic R&D. In the past 10 years, there have been four Japanese scientists on the list of Nobel laureates for physiology or medicine. Japan has been at the forefront of many areas of life sciences.

Building on a coordinated and balanced development of medical care, medicine and medical insurance, Japan, as a pioneer in the era of longevity, has attached great importance to elderly care and launched a series of policies to support the industry. For example, the *Guidelines on Policy for a Society of Longevity* in 1986, *Ten-Year Strategy for the Promotion of Health and Welfare for the Elderly (the Gold Plan)* in 1989. The establishment of the long-term care insurance system, in particular, has promoted the development of the elderly care industry. Elderly care service institutions have set up sophisticated business models in Japan and continue to innovate their specialized services. Elderly care is mainly divided into residential care services and in-home nursing care services. Residential care is what we often refer to as admitting nursing homes, and in Japan, such homes are categorized into different groups based on the level of care older persons need, and each group has detailed entry criteria to check in. For example, special nursing homes are for those who need long-term care, while sanatorium-type nursing homes are for those who do not need nursing care. In terms of in-home nursing care services, elderly individuals usually stay in their own home instead of in nursing homes, and caregivers provide professional home-visit long-term care. Such caregivers include health care professionals, rehabilitation professionals and medical care professionals based on the physical condition of elderly individuals.

In recent years, a third type of elderly care service has emerged, called "nursing facilities", in addition to the two abovementioned services. It is a daycare center for elderly individuals, which is usually within a 30-min drive distance from where older persons live, providing daytime care services. The older persons are picked up or sent to the center in the morning, where they can participate in different hobby clubs and health-enhancing activities under the supervision of professionals and escorted back home at dusk. According to the data of Japan's Ministry of Health, Labor and Welfare, Japan's total social security expenditures in 2018 accounted for approximately 21.5% of the GDP, of which nursing care accounted for approximately 2%. In terms of the number of beneficiaries, in 2019, more than 5 million people received elderly care services through long-term care insurance, accounting for approximately 4% of the

total population. The development of the elderly care industry has also given rise to some new business concepts. For example, Teruko Mizushima from Japan introduced the idea of time banking in 1973. In time banks, participants deposit their hour of time given and withdraw "hours of services by others" when they encounter difficulties themselves. Based on this model, everyone could deposit and withdraw elderly care service hours at the time bank, being both the supply and demand side, thus pioneering an innovative model of "contribute today and enjoy tomorrow" in elderly care. The time bank idea is an attempt to solve urgent problems with future remedies, but just as distant water cannot quench a fire nearby, it cannot solve the problem of insufficient manpower in providing elderly care that Japan currently faces.

Technological innovation might make a difference, especially artificial intelligence. Japan is a robotics powerhouse. It started to develop and use robots in the 1970s and included the R&D of robots as a new industrial strategy. In recent years, the focus of robot R&D and production in Japan has shifted from the application in industrial scenarios to elderly care scenarios. According to the survey results released by the Yano Economic Research Institute in Japan, the size of the domestic market for elderly care robots will exceed 200 million yuan in 2021. It is estimated that by 2025, there will be a shortfall of 380,000 in the labor supply of elderly care professionals, which signifies that there is rigid demand for robots, and the market size of elderly care robots is projected to grow by ten times.

Building on Japan's successful industrial chain, Japanese tech companies have already developed a fleet of elderly care robots with excellent performance, mainly physical assistance robots and social assistance robots. In providing physical assistance, Resyone robots developed by Panasonic could transform from a robotic bed to an electric wheelchair and could help the elderly turn over to prevent bedsores. The Robear, a nursing bear robot developed by Japan's Sumitomo Riko, could flag early warnings when the elderly are about to fall off bed to avoid fractures due to falling. The robot could also monitor clinical indicators such as breathing and heart rate. In providing social assistance, the nursing care robot developed by Yaskawa could help paralyzed and semi-paralyzed elderly individuals exercise their limbs and restore some mobility to improve their quality of life. An interactive and healing seal pup robot named Paro was designed in Japan and could be comfortable for patients with Alzheimer's disease or dementia. Paro has been certified by the U.S. Food and Drug Administration as a medical device, and studies have confirmed that elderly individuals who interact with Paro experience a decreased sense of loneliness.

To conclude, we could see that Japan in the era of longevity is standing at the doorstep of the era of health. However, the growth rate of healthy life expectancy in the Japanese population did not keep pace with that of life expectancy. In the decade from 2010 to 2019, the life expectancy of Japan's population maintained an upward trend, increasing from 83.3 to 84.8, a growth rate of 1.8%. During the same period, the healthy life expectancy has also grown, but only at 1.4%, outpaced by life expectancy (see Table 4.2).

An increasing number of older persons has led to rapidly soaring social security expenditures on medical care and elderly care. Japan's heavy debt is concerning, as is the phenomenon that older persons take up an increasingly disproportionate

Table 4.2 The healthy life expectancy of Japan's population outpaced by life expectancy

	2000	2009	2010	2019
Japan-life expectancy (years old)	81.6	83.3	83.3	84.8
Japan-healthy life expectancy (years old)	70.9	72.2	72.3	73.3
The ratio of increase in healthy life expectancy to increase in life expectancy	0.76		0.67	

Source: The World Bank

share of medical and fiscal resources. In terms of health insurance, Japan is one of the few countries that provides universal coverage, with only 10–30% out-of-pocket payments borne by individuals while more than 80% covered by the government. In 2018, Japan's social security expenditures, including medical care expenses and pensions, accounted for 21.5% of the GDP, and the figure is expected to rise to 24% in 2040 according to the Japanese government. As of now, the Japanese government has already been debt ridden, with government debt accounting for more than 200% of its GDP, which is much higher than that of other countries. Japan has not been able to make ends meet financially for a long time and has to borrow against future income. If Japan's financial condition is to take a health check-up, the results might well be unhealthy.

How Far Away is the Era of Wealth?

With the oldest population in the world, Japan has established a social security system where there is national health insurance for all and national pension for all. In the previous sections, we have discussed Japan's health insurance and long-term care insurance system, and now we focus on pensions.

Although Japan's pension insurance system is often used as a textbook case, in the context of deepening aging, the system has become an increasingly heavier burden, and this is thought-provoking. The Japanese government covers half of the basic national pension payments, all the administrative expenses of basic national pension and employees' pension. The aged population puts Japan under unprecedented financing and payment pressure. The replacement rate of Japan's public pensions has also been declining. The 2019 Actuarial Valuation in Japan released by the Japanese government shows that the replacement ratio for every Japanese married couple is projected to further decline by month in the future. According to the government's forecast, the replacement ratio would be 61.7% in 2019, then drop to a level ranging from 51 to 52%, and further fall to 45% approximately 2050.

The biggest problem Japan's pension system faces is that its sustainability is threatened by a persistently low fertility rate, intensified population aging and weak economic performance. To sustain the operation of the public pension scheme, the Japanese government has repeatedly adopted measures such as cutting the pension benefit amount and raising the pension eligibility age to alleviate fiscal pressure. In 2016, the Japanese government adjusted the indexation system, and the amount of benefit was indexed to the average salary increase instead of the consumer price. The amount of benefit saw a decrease as wage growth in Japan has long been sluggish.

Such measures helped ensure the sustainability of the system to some extent, although they eroded people's trust in the pension system. Distrust has intensified among young people in particular, and more of them are choosing not to make contributions or default on premiums. People worry that with all the money contributed at young, they could not enjoy pension benefits as expected when they get old.

Less pension benefit income dealt a blow to the after-retirement living standards of elderly individuals. In recent years, there have been an increasing number of cases of old-age poverty, which has become a social problem. The Japanese media reports that one in every four old-aged persons lives below the poverty threshold. Old-age poverty could arise from many factors. For one, the size of the family decreases, and a larger old-aged population no longer relies on children's support. Single older persons are hit the hardest. In addition, with rising medical care expenses and lower pension benefit income, the elderly are confronted with building financial pressure. The impoverished old-aged population is exploding. Despite lots of media coverage on old-age bankruptcy and old-age poverty, the elderly in Japan are still relatively wealthy, based on data at a macro level. This points to the ever-widening income disparity between the rich and the poor in Japanese society, as we see some elderly in poverty struggle to make a living, while some rich old-aged persons hoard substantial wealth. Data from the Statistics Bureau of Japan show that the net savings of the old-aged population in Japan are much higher than those of other age groups (see Fig. 4.6). The old-aged population has very little debt, mainly due to a long period of accumulation. As Japan's society has become increasingly aging, the wealth gap among the elderly might be a prominent systemic problem.

Those elderly with substantial savings had gone through postwar reconstruction, holding the belief that savings is the best of things in the world, and then lived

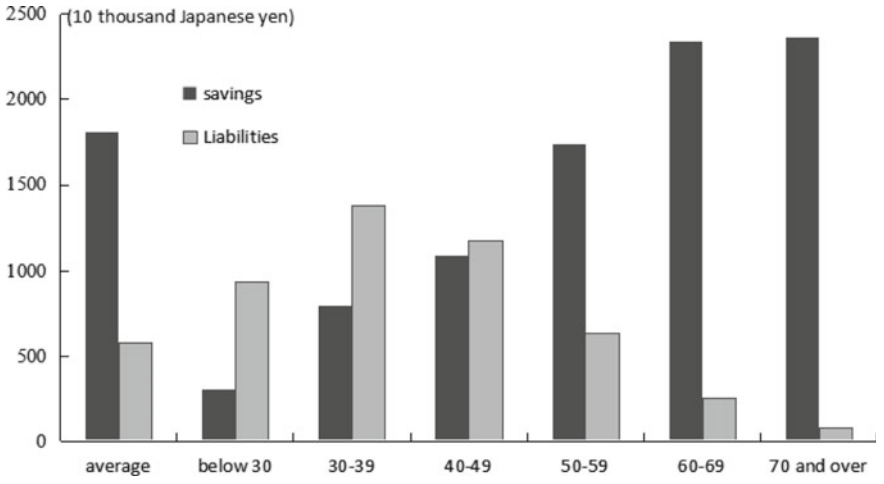

Fig. 4.6 Savings and liabilities of Japanese households (2019). *Source:* The statistics bureau of Japan

through the recession after the economic bubble burst, always anxious about the future, always saving for rainy days. Kenichi Ohmae, a famous Japanese scholar, described in his book "*Low Desire Society*" that it is a strange thing that Japanese live with anxiety about the future during their entire life and end up being rich on their death bed.

While the thought of saving ingrained in the old-aged population, the young are heavily indebted. This fact has swayed investment behaviors of the Japanese. Against the backdrop of sluggish economic growth and in consideration of huge pressure for future retirement life, people prefer avoiding losses as much as possible when making investments. Personal wealth in Japan has existed in the form of low-risk assets such as savings for a long time. According to the latest data released by Japan's central bank, the financial assets held by Japanese households in 2020 reached a record of 1948 trillion Japanese yen (approximately $17.85 trillion), half of which is in the form of cash and bank deposits. After the coronavirus pandemic hit, the Japanese government handed out economic stimulus checks to eligible residents. However, the money did not boost consumer spending, for most of it has been deposited. In Japan, after going through the bubble economy burst and ensuing economic recession, people seldom had luck in stock investment, and the stereotype has been deep-rooted that investment equals speculation.

A bank deposit is indeed a safe investment that guarantees a stable life but will also inevitably slow down personal asset growth. Japan's persistently low and even negative interest rates have posed challenges to the preservation and appreciation of asset value. Nevertheless, most people still choose to put money in a bank or a postal savings institution.

For those who do invest, the amount of money they are willing to invest is limited. Young people in their 30s–40s must spend most of their income on house mortgage repayment and education, with little money left to invest. Older persons are often risk averse, and their investment priority is to keep assets from decreasing rather than increasing, so they are also cautious in spending on investment.

On the supply side of financial services, large numbers of Japanese financial institutions went bankrupt and closed down after the bubble burst, and the survivors spent years dealing with nonperforming assets. Against this backdrop, the innovation and supply of financial products have been weak. Japanese financial institutions could be meticulous with their service details, such as constantly optimizing processes or improving services to make customers feel at home. However, business model innovation at a great scale is hard to spot. For example, in integrating demands for old-age health with insurance product design, I heard about some attempts in Japan, but they failed to scale up. Insurance companies that set up old-age care entities are more out of business diversification considerations. In contrast, in China, Taikang, as a pioneer, has been followed by many in the insurance industry to invest in medical and caring services by setting up a chain of retirement communities by integrating intangible insurance plans with tangible medical and elderly care services. A unique business model has been formed gradually to respond to the trend of population aging.

It is safe to say that Japan has entered into the era of longevity, but not the era of wealth. There are no sound wealth solutions available whether it is for the poorer or richer elderly. As a result, those who are worse off depend on fewer pension benefits, living a hard life and struggling to make ends meet, while those who are better off still prefer savings to investing even when the interest rate is next to nothing. The financial sector failed to offer sound and innovative solutions to facilitate the conversion of personal wealth to investment. Few institutions combine the need for old-age health in the era of longevity with financial product innovation, and if this goes on, capital cannot be put into efficient use. When people have no strong demands for wealth, the wealth management industry is deprived of the soil to flourish. Both personal investment and the national economy are mired in a morass. Without stable flows of resident assets being channeled to invest in growth sectors, the economy is hard to kick-start to shake off deflation, let alone to expand resident wealth in turn. It would be such a huge pity.

4.4 Striding Towards a Prosperous Longevity Economy

As an important sample of a society in the era of longevity, Japan has gone through profound economic and social changes. Under the undeniable underlying trend of demographic changes, Japan has formed a unique M-shaped society and experienced lacklustre economic growth. The changes in the age structure have not just been a drag on the labor force, innovation and capital among many other aspects but have also hindered Japan's economic and social development.

Demographic change is worth great attention, as it exerts such a huge influence on a country. At present, it is a similar case in Asian countries and regions, such as South Korea, Singapore and Taiwan, where aging accelerates and the fertility rate remains low. Moreover, South Korea and Singapore have already seen negative population growth for the first time in 2020, an alarming sign of population shrinkage. Taking another look at China, population growth has remained low for almost a decade, and negative population growth is expected to arrive earlier than expected. China entering the era of longevity would bring profound changes to the economy and society, both domestically and beyond, which requires close attention and early planning. Japan has been trying some positive attempts. The era of longevity has stimulated the emergence of new demands and new industries, where we could look for positive factors that come along. In terms of scientific technology, Japan boasts several Nobel Prize laureates in physiology or medicine and other basic research fields. It is also an absolute front-runner in robotics, leading the world in elderly care service robots. In the Big Health Industry, the age of longevity has created many opportunities, and the demands of the elderly have given rise to medical and health care. Bolstered by sustained support from the government, Japanese businesses have shown strong initiative in the fields of medical care, medicine and medical insurance.

However, as David Pilling, the Asia editor-in-chief of the Financial Times, once commented, "Japan's innovation advantage lies in incremental improvements rather

than revolutionary breakthroughs." In the mobile internet wave trending in the recent 20 years, search engines subverted portal sites, mobile payment subverted cash circulation, takeout subverted catering, online car-hailing subverted taxis, self-media subverted mainstream media, and e-commerce, which used to subvert off-line shopping, have been defined as traditional e-commerce, at risk of being subverted by social media e-commerce. In contrast, Japan has had a well-fledged social infrastructure to match the needs of the main population. Although there is some innovation driven by the craftsmanship that was passed down from generation to generation, due to a lack of internal drive and external shock, there were no international mobile internet giants emerging among native Japanese businesses. This is a similar case with Japan's elderly care industry. The Japanese government has put in place effective systems, such as national health management programs, universal health insurance coverage and long-term care insurance system which provide elderly individuals with health care in sickness and nursing care in old age. The generous welfare guarantee held back the elderly care industry from systemic innovation in institutional arrangement, financing model and business model. There is no single enterprise in Japan that both provides the elderly with financial products producing persistent and stable returns, or allows them to enjoy a new lifestyle of living in a chain of large private retirement communities.

There are many industries and economic forms emerging in Japan, driven by the consumption of the elderly. I use the term "longevity economy" to describe the economic activities participated in by the elderly and the resultant ripple effect, and the activities include both the demand and supply sides. Based on current observations, the elderly in Japan have played more of a consumer role, driving economic progress on the demand side through spending on nursing care and medical care. Therefore, Japan is still in the early stage of its longevity economy. Only when the elderly also assume the role of producer and innovator and contribute to economic growth and social advancement from both the demand and supply side could human society be ushered in the advanced stage of the longevity economy. Although the elderly in Japan are rejoining the labor force, their productivity and innovation are yet to be further unleashed at a greater scale. In Japan, there are no enterprises that help the elderly plan, manage their health and wealth or provide services across their lifespan from different angles of multiple fields, such as insurance, investment, medical care and elderly care. If there were, the elderly would no longer be afraid of investment; instead, they would be able to enjoy long-term stable yields and compounding while embracing a new lifestyle of an active retirement life.

We believe that only by providing a solution that integrates elderly care and medical care services by offering an advanced financing model that combines benefit payouts with services could the elderly be free from worries about their retirement life. The elderly could then engage in consumption, production and innovation, constantly contributing to the economy from both the demand and supply sides and expediting the advent of a prosper and dynamic longevity economy.

In the age of longevity, the population reaches a new equilibrium. We need more in-depth strategic thinking and forward-looking planning and action to achieve a new growth path that outperforms Japan's model. Although the advanced stage of

the longevity economy characterized by the elderly producing and innovating has yet to take shape across the world, I believe the industrial economy will take a leap to the longevity economy after constant adapting and innovation. Emerging supplies and demands driven by people's pursuit of longevity will continue to sprout and grow, expanding the landscape of the longevity economy. Mainstream businesses in the longevity economy will take the center stage of the world business arena, similar to the FAANG in today's internet mobile era, which is Facebook, Apple, Amazon, Netflix and Google.