COMPONENT ONE

Population Ageing, Change of Labor Market and Social Security for the Old Age
--How to Perfect the Urban Employee Basic Pension Insurance

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Abstract: By observing the consequences and challenges of population aging in China, this paper discusses how to perfect the urban employee basic pension insurance from a perspective of labor market. The paper concludes that the rapid increase of retirees has resulted in decrease of replacement rate of the urban employee basic pension insurance in spite of the rapid expansion of coverage of the insurance. It is true that expansion of the coverage will help maintain the replacement rate not decline further in a short run, but it is actually an issue of financing to maintain a stable replacement in a long run. However, the contribution rate of the pension insurance is already the highest in the world, and the solution will not be possible to find through expansion of coverage. As a socialist country, China's state owned assets is not only a solid source for pension funds, and the contribution of the state-owned assets into pension funds will also make the pension insurance with Chinese characteristic.

Key words: Population Aging, employment, social security for old age.

1. Population Change and Trend Forecasting

Since the Reform and Opening, the mechanism of market allocation of resources has made the demographic dividend into the advantage of labor cost, so that China has become a "world factory" and achieved rapid economic growth. Since 1978, the average annual economic growth rate has reached about 10%, and the GDP per capita has doubled several times; in 2014, the GDP per capita reached $7,648. China has quickly transformed from a poor and backward country into a middle-income country. However, as the proportion of the working-age population is approaching close to the highest point in the history and the demographic dividend is weakening, it is difficult for China to continue maintaining rapid economic growth over the past few decades; at the same time, rapid decline in fertility level leads to accelerated population ageing, so that the population will transform from a factor promoting economic growth into an unfavorable factor.

According to United Nations Population estimates and projections, in China, the proportion of population aged over 60 will exceed 15% by the end of 2013, and the proportion of population aged over 65 will be 10%. By 2020, the previous two proportions will reach 18.9% and 13.63% respectively. Based on the basic situation of China's economic and social development, we made a forecasting of China's population and its structure change from 2016 to 2050. As shown in Table 1, in 2020, the proportion of population aged over 60 and the proportion of population aged over 65 will be 18.2% and 13.0% respectively, which are slightly lower than the United Nations projections, but not much differences. From 2016 to 2020, these two proportions will increase 1.6 and 2.0 percentage points respectively, with an average annual increase of 0.3 and 0.4 percentage points respectively. By 2030, these two proportions will increase to 26.2% and 18.2% respectively, which are 9.6 and 7.2 percentage points higher than those in 2020, with an average annual increase of 0.8 and 0.5 percentage points respectively. By 2050, these two proportions will further increase to 37.5% and 28.5%, with an average annual increase of 0.6 and 0.5 percentage rates from 2030 to 2050, which has been decreased compared to those from 2020 to 2030. Therefore, according to our forecast, from 2016 to 2050, China's future trend of population ageing will continue to increase; in stages, the population ageing will continue to accelerate from 2016 to 2030, while the speed of ageing will decrease after 2030.

Table 1 Forecasting of China's Population and Its Structure Change (2016-2050)

Year	Total Population (10,000 persons)	Proportion (%)		Proportion (%)	
		15-59	15-64	Aged over 60	Aged over 65

2016	138222.6	66.7	72.3	16.6	11.0
2017	139111.7	66.2	71.6	16.9	11.5
2018	139926.7	65.6	70.9	17.3	12.0
2019	140664.7	65.1	70.3	17.7	12.5
2020	141179.1	64.6	69.8	18.2	13.0
2025	142213.9	61.8	68.6	21.7	14.9
2030	141792.3	58.8	66.8	26.2	18.2
2035	140409.6	57.3	64.9	29.9	22.2
2040	138271.0	55.9	62.3	31.9	25.4
2045	135283.6	53.9	60.8	33.8	26.9
2050	131319.8	50.2	59.2	37.5	28.5

Source: The author used PADIS, which is the population forecast software from the National Health and Family Planning Commission of the People's Republic of China, to forecast China's population from 2011 to 2050, based on the 2010 Census Data. Based on the forecast results, the author made this table.

From the perspective of the proportion of the working-age population to the total population, China is still in a period that the labor supply is relatively rich; in 2016, the proportion of the working-age population aged 16 to 64 is 72.3%. But this proportion will gradually decline: by 2020, this proportion will decrease to around 70%, and by 2030, it will decrease to 67% (see Table 1). If defining the starting decline of the proportion of the working-age population to total population as the time point when the demographic dividend disappears (Cai, 2007), then, it can be said that China has already crossed the turning point that demographic dividend started to disappear. The decline in the proportion of the working-age population will inevitably bring about increased old age burden. If defining the proportion of population aged 65 to the working-age population from 16 to 64 as the dependency ratio of the working-age population, then it can be seen that this proportion presents a rapidly rising trend in the future. In 2016, this dependency ratio is 15%; by 2020, it will increase to 18.6%; by 2030, it will reach to 27%; and by 2050, it will be as high as 48% (see Figure 1). For a more intuitive argument, in 2016, each of the elderly aged over 65 corresponds to 6.6 working-age population aged 15-64; by 2020, this number will decline to 5.4, by 2030 drop to 3.7, and by 2050, this number will drop down to only 2.0.

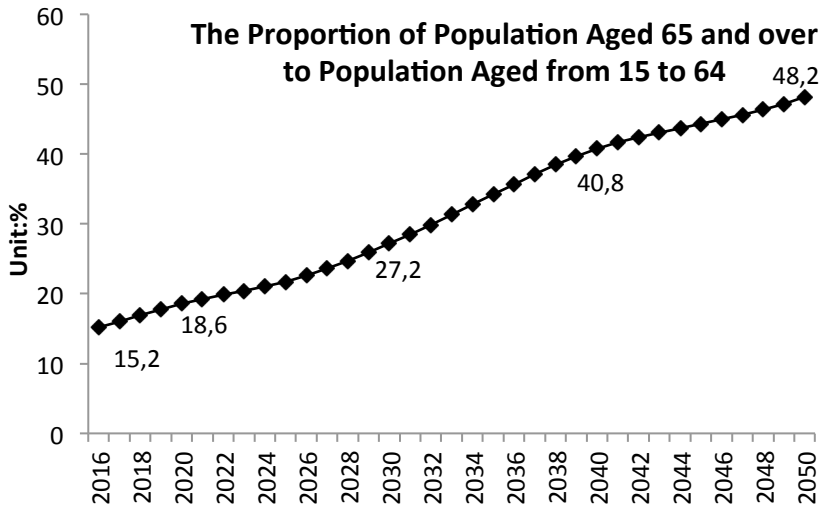

Figure 1 Change of the Old Age Dependency Ratio of the Working-age Population

Source: same as Table 1.

In general, after the demographic dividend disappears, economic growth will greatly slow down. Japan's experience has clearly illustrated this point. Japan is the first country which accomplished population change and economic development and prosperity in Asia. Japan's "demographic dividend" also appeared first, which started from about 1930-35 and ended in 1990-1995, lasting about 60 years. Japan's economic development history shows a high correlation with the demographic dividend (Gao, 1992; Meng *et al.*, 2005). From 1930 to 1950, the average annual growth rate of Japan's economy was only 2.21 percent; from 1950-1973, the average annual growth rate increased to 9.29 percent; after the oil crisis in 1973, Japan's economic growth rate gradually declined; by the early 1990s, Japan's economic growth stalled. Corresponding to this, changes in the indicators that reflect the demographic dividend—the dependency ratio (the lower the dependency ratio, the more obvious the demographic dividend)—presented the opposite trend to Japan's economic development. The 1960s was the fasted-growing period of Japan's economic growth, and also was the period during which the proportion of Japan's working-age population increased and the dependency ratio decreased. Before the 1990s, Japan's dependency ratio maintained at a low level of less than 50%, and the economy continued to growth at an average rate of around 5%. After the 1990s, with the decline of the demographic dividend, the dependency ratio gradually increased, and economic growth began to stagnate. Many studies suggest that the disappearance of the demographic dividend and the growing population ageing are among the main factors leading to Japan's economic recession (Ma, 2000; Hou *et al.*, 2010).

Japan's experience indicates that a reduction in labor supply and an increased

burden on the elderly will inevitably lead to a decline in the potential labor productivity, which will affect the economic growth. When the number of working-age population is less than the retired population, the relatively small proportion of fresh “blood” and the older high-skilled labor force will become the main subject in the labor market, which leads to a constantly reduction in the proportion of young labor force to the working-age population. Meanwhile, ageing of the labor age structure also may reduce the speed of the whole society absorbing new knowledge and new ideas, which leads to a decline in technology innovation capacity and weakens the role of technology progress in promoting economic development. Moreover, population ageing will also bring a reduction in the market demand. Population aged 15-64 is the production-age population and the strongest consumer as well. The increase in demand due to the ageing population is difficult to compensate for the reduction in consumption demand due to the decline in the population at the age of production. Therefore, the total consumption demand will tend to weaken.

Population ageing will not only bring economic growth to slow down, more importantly, the social burden of pension will become heavier. With the increasing of ageing population, the financial burden will increase, so that the government will have to increase taxes and social insurance contributions, resulting in increased national burden, which will further inhibit household and individual consumer demand, leading to slower economic growth. Ageing will also bring the dramatically increase of the costs of medical and health care. As the size of the family shrinks, the ability to care for the elderly is declining. The older the population, the higher the cost of maintaining well-being and health, so that the society and families will face the heavy burden of health care in the future.

Population ageing is a serious challenge for any country, especially an acute challenge for China, for the main reason that in China, the population is changing more quickly and ageing much faster. In 2010, China’s population aged over 65 was 118 million; by 2030, the population will be more than doubled to 268 million, an average annual increase of about 7.47 million; and by 2050, China will have 430 million population aged over 65, which means there will one elderly person in every three people. More serious situation is that as the elderly population is increasing, at the same time, the elderly population is also ageing; in other words, it is gradually moving from population ageing to the ageing of the ageing population. Thus, the burdens of pension, medical and health care will inevitably increase. In response to the growing population ageing situation, on one hand, we should continue to maintain sustained economic growth, but more importantly is how to speed up the construction of the social security system, to perfect the income security and social services system. From this point of view, there is a long way to go.

2. Working-age Population and Change of Labor Market

Around 2010, there was an important turning point in China's population development process—the size and proportion of working-age population began to decrease. As shown in Figure 2, the proportion of the population aged 15-64 increased from 67.2% in 1995 to 74.5% in 2010, then after that beginning to decline, decreased to 73.5% in 2014. The growth rate of the working-age population presented a trend from fast to slow. From 1995-2010, the average annual growth rate of the working-age population was only 1.3%; after 2010, the rate decreased significant; and from 2010 to 2014, the average annual growth rate was only 0.13%, which was nearly only 1/10 of that in 1995-2010. More importantly, in 2014, there was an absolute decline in the size of the population aged 15-64, which was reduced by 1.13 million compared with that in 2013.

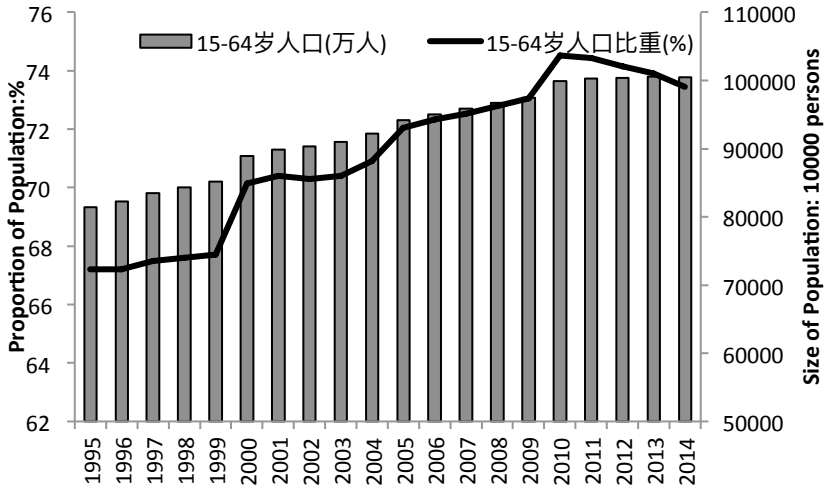

Figure 2 Change of Proportion of Working-age Population in China (1995-2014)

Source: Calculated based on the Database of National Bureau of Statistics of the People's Republic of China. http://data.stats.gov.cn/

Labor force participation rate can more directly reflect the relative size of the economically active population in the market. Figure 3 presents the changes of total economically active population and labor force participation rate. It can be seen that the economically active population in China shows a gradual growth trend. The economically active population increased from 690 million in 1995 to 800 million in 2014, with an average annual growth rate of 0.8 percentage points, which is lower than 1.1 percentage points the average annual growth rate of the working-age population. This means that the labor force participation rate will decline, which decreased from 84.6% in 1995 to 79.3% in 2014. This illustrates that the economically active population is growing, but the labor force participation is declining. Due to the decline in both the working-age population and labor force participation, the real labor supply will inevitably decline at a faster in the future.

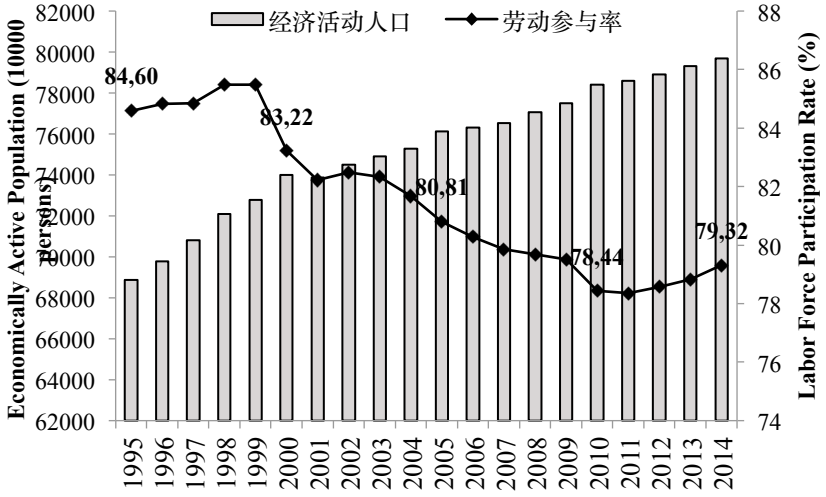

Figure 3 Proportion of Economically Active Population to Working-age Population (15-64)

Source: same as Figure 2.

The distribution of industries shows a significant "non-agricultural" and "service-oriented" trend. Non-agricultural employment has shown a declining trend since 1995. But between 1995 and 2003, non-agricultural employment is relatively stable, mainly because the proportion of secondary industry employment declined. This is because China experiences a severe state-owned enterprises reform process from 1997 to 2003, during which the secondary industry was greatly affected and the employment scale of the secondary industry was reduced. Since 2003, China has begun a new round of rapid growth, during which manufacturing and service industries have had tremendous development and the scale of non-agricultural employment has increased rapidly. Meanwhile, as the reservoir of surplus labor force in agriculture "depleted", the total size of the agricultural labor force began to shrink rapidly. Worth noting is that China's employment structure has shown a non-agricultural trend. The proportion of employment in the service industry not only increased rapidly in the proportion of total employment, but also widened the gap with the proportion of employment in the secondary industry. In 1995, the two proportions were almost the same and the gap between them was only 1.8 percentage points; but by 2014, the gap was widened to 10.7 percentage points. Thus, China's future job creation will mainly depend on the service industry. How to improve the employment elasticity and employment quality of the service industry will become the focus of employment policy formulation.

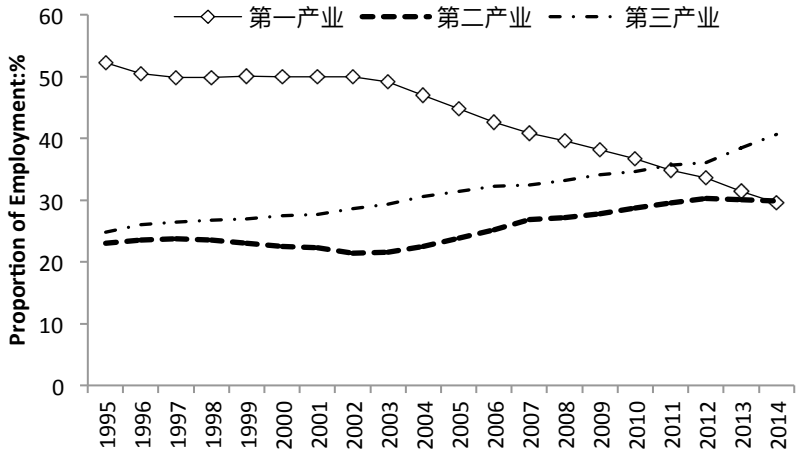

Figure 4: The Distribution of Employment by Three Strata of Industry: 1995-2014

Source: same as Figure 2.

To some extent, the process of economic modernization is the process of constant employment regularization. Employment regularization refers to that more and more people are engaged in production activities in formal production organizations, or the proportion of people employed in various forms of production organizations to total employed people constantly increases, so that the proportion of employees to total employment can be used to reflect the degree of employment regularization. As shown in Table 2, the size of total employees in urban and rural areas has been increased, which increased from 268.11 million in 2000 to 485.53 million in 2014 with average annual growth rate of 4.3%; the proportion of employees in urban and rural areas to total employed persons increased from 37.2% to 62.8%, with an increase of 25.6 percentage points. From the urban point of view, the number of urban employees increased from 128.52 million in 2000 to 278.52 million in 2014 with an average annual growth rate of 5.7 percentage points, which is much higher than the average annual growth rate of urban employment of 3.9%. The proportion of urban employees to total employed persons in urban areas increased from 55.5% to 70.9% in 2014 with an increase of 15.4 percentage points. It can be seen that since 2000, the employment rate of employees has been increasing rapidly, which indicates that more and more wealth is produced by the employees working in the formal production organizations, and also indicates that the quality of China's economic development is constantly improving.

Table 2 Trend of Employment

	Employed Persons in Urban and Rural Areas	Employed Persons in Urban Areas (10,000	Employees in Urban and Rural Areas		Employees in Urban Areas	
			Population	Proportion (%)	Population	Proportion (%)

	(10,000 persons)	persons)	(10,000 persons)		(10,000 persons)	
2000	72085	23151	26811	37.2	12852	55.5
2001	73025	23940	26924	36.9	12651	52.8
2002	73740	24780	27568	37.4	12869	51.9
2003	74432	25639	28681	38.5	13354	52.1
2004	75200	26476	29821	39.7	13931	52.6
2005	74647	28389	31321	42.0	14684	51.7
2006	74978	29630	32752	43.7	15440	52.1
2007	75321	30953	34144	45.3	16382	52.9
2008	75564	32103	35327	46.8	17096	53.3
2009	75828	33322	36519	48.2	17868	53.6
2010	76105	34687	37910	49.8	18838	54.3
2011	76420	35914	40313	52.8	21006	58.5
2012	76704	37102	42163	55.0	22418	60.4
2013	76977	38240	46476	60.4	26049	68.1
2014	77253	39310	48533	62.8	27852	70.9

Source: same as Figure 2.

In the past few years, China's social security system for old age has made great achievements, achieving nationwide full coverage for the urban and rural residents in the system. In the framework of existing system, the urban employee basic pension insurance system needs to cover employed persons in urban areas; the new rural pension insurance system needs to cover rural residents who are 16 and over (excluding students) and do not participate in the urban employee basic pension insurance system; and the urban resident pension insurance system needs to cover urban non-employed residents who are 16 and over (excluding students) and do not meet the basic participation requirements of the urban employee basic pension insurance system. The aforementioned three systems together should theoretically cover all urban and rural residents over the age of 16.

However, reviewing the three social security systems for old age mentioned above would find that the new rural pension insurance system and the urban resident pension insurance system started late, which only in recent years began to implement a low level of protection, which cannot afford to guarantee the basic living for old age people. In other words, when a person is over the retirement age and receive no other income, either the new rural pension insurance system or the urban resident pension insurance system cannot guarantee their basic living; while only the security level of the urban employee basic pension insurance system can meet their basic needs. However, due to the low coverage, the social security for old

age of the urban employee basic pension insurance system is still very limited.

The urban employee basic pension insurance system adopts the funding model of individuals and organizations (employers) making joint contributions; the most convenient to be covered by this system should be those wage earners who receive wages. Wage earners can make their own contributions due to fixed wage income and also can be made contributes by their organizations or employers; while for those self-employed workers, it is not appropriate from them to participate in this system, because self-employed people lack the organizations or employers making contributions for them. Of course, theoretically, the urban employee basic pension insurance system does not exclude the self-employed people, but the prerequisite is that the participants must bear the costs of organizations' contributions by their own. At present, the urban employee basic pension insurance system allows urban self-employed people to participant in many places, just need to pay the part of organizations' required contributions by their own. From the point of view of system design, it is very difficult for farmers engaging in family agricultural activities in rural areas to participate in this system. The main reason is that the income of farmers is too low and not fixed, so that it is difficult for them to afford individual contributions and bear the costs of organizations' contributions as well.

From the perspective of the labor market, the workers should be covered by the urban employee basic pension insurance system need to meet these two conditions, one is non-agricultural employment, another is employed employees. In general, employed employees are non-agricultural employed people in most cases, but non-agricultural employed people are not necessarily employed employees. Therefore, observing the changing trends of non-agricultural and employee-oriented employment in the labor market has important practical significance to constantly perfect the urban employee basic pension insurance system and give full play of the basic role of the social security for old age.

Traditionally, China is an agricultural employment and self-employment oriented country; but changing from agricultural employment to non-agricultural employment, from self-employment to employment of employees is a necessary process for any modern country. From the perspective of employment, the development of a society is the process to continue achieving non-agricultural and employee-oriented employment. Of course, employment needs non-agricultural as prerequisite, because in order to become employees, it must be transferred from agricultural to non-agricultural industries; but non-agriculturalization does not necessarily lead to employment of employees, because the labor force transferred from agriculture can be employed employment or self-employed employment. When they cannot find a suitable employed job, the labor force transferred from rural areas can only choose to engage in individual business and commercial activities in urban areas so that they become self-employed people.

Now China has achieved the change from mainly agricultural employment to non-agricultural employment and the change from mainly self-employment to

employment of employees. In 1978, the proportion of agricultural employment was 70.5% and the proportion of non-agricultural employment was only 29.5%; by 2010, the proportion of non-agricultural employment reached 63.3%, while the proportion of agricultural employment decreased to only 36.7%. Meanwhile, the degree of employment of employees is also increasing. In 1978, the proportion of employed employees was only 30.7%, while the proportion of self-employed was as high as 69.30%. The trend of non-agricultural employment and employment of employees is the most fundamental change in the current labor market. Moreover, with the development of China, non-agricultural employment and employment of employees will be further increased. In the developed countries where industrialization has been achieved, the degrees of non-agricultural employment and employment of employees are very high. Not only the proportion of agricultural employment to total employment dropped to less than 5%, or even less than 1%, but also the process of employment of employees has been completed. For example, in the United States, the proportion of employees employed has been stable at around 90% since 1980; in the UK, the proportion of employees employed has been stable at between 85% and 92% since 1980. According the latest data from the International Labour Organization (ILO), in 2008, the average proportion of employees employed in the developed countries and European Union economies was 86.2%. From the perspective of the degree of employment of employees, China still has the typical characteristics of a developing country. By 2010, in China, the proportion of employees employed was only 50%, which is far from the average level of around 86% of the developed countries.

Table 3 summarizes the important changes that have happened in China's labor market since 1990. As shown in Table 3, in 2014, China's adult population aged over 15 was about 1.137 billion, of which the number of economically active population aged over 15 was about 796 million. Among the economically active population, there was 773 million working population of employment. Based on this, we can calculate that in 2010, China's labor participation rate of total adult population was 70% and the employment rate was 68%. Furthermore, let's look at the status of employment. Among the about 770 million total employment, the total number of non-agricultural employment is 545 million and the number of employees is around 485 million. So in 2014, the non-agricultural rate of employment was 70.4% and the rate of employment of employees was 63%. By 2014, the total number of participants in the urban employee basic pension insurance system was 341 million, of which the number of participated employees (*i.e.*, the people who are making contributions) was 255 million and the number of retirees receiving pensions was 85.93 million. Here let's take a look at what the coverage rate of the urban employee basic pension insurance system is from various criteria.

Table 3 Change of Labor Market and Change of Number of Participants in the Urban Employee Basic Pension Insurance System

Unit: 10,000 persons

Year	Population aged over 15	Economically Active Population	Total Employment	Total Non-agricultural Employment	Total Number of Employees	Total Number of Participants	Total Number of Participated Employees	Total Number of Retirees
1990	82664	65323	64749	25835	23491	6166	5201	965
1991	83724	66091	65491	26393	24297	6740	5654	1087
1992	84832	66782	66152	27453	25647	9456	7775	1682
1993	86345	67468	66808	29128	27552	9848	8008	1839
1994	87482	68135	67455	30827	27913	10574	8494	2079
1995	88740	68855	68065	32535	29111	10979	8738	2241
1996	90734	69765	68950	34130	29890	11117	8758	2358
1997	92817	70800	69820	34979	29422	11204	8671	2533
1998	94424	72087	70637	35460	26934	11203	8476	2727
1999	95673	72791	71394	35626	26837	12485	9502	2984
2000	96912	73992	72085	36043	26808	13617	10448	3170
2001	98891	73884	72797	36399	26920	14183	10802	3381
2002	101111	74492	73280	36640	27568	14737	11129	3608
2003	102947	74911	73736	37532	28683	15507	11647	3860
2004	104898	75290	74264	39434	29817	16353	12250	4103
2005	105191	76120	74647	41205	31322	17488	13120	4368
2006	107170	76315	74978	43037	32750	18766	14131	4635
2007	108512	76531	75321	44590	34143	20137	15183	4954
2008	109804	77046	75564	45641	35326	21891	16588	5304
2009	110939	77510	75828	46938	36519	23550	17743	5807
2010	111824	78388	76105	48174	38075	25707	19402	6305
2011	111832	78579	76420	49826	40313	28391	21565	6826
2012	112571	78894	76704	50931	42163	30427	22981	7446
2013	113117	79300	76977	52806	46476	32218	24177	8041
2014	113743	79690	77253	54463	48533	34124	25531	8593

Source: same as Figure 2.

Table 4 calculates the coverage rate of the urban employee basic pension insurance system for various groups of people. The coverage rate using whichever criterion has shown a rising trend, but so far, the level of coverage rate is not high. The proportion of participants in the urban employee basic pension insurance system (including retirees) to total population aged over 15 was 7.46% in 1990 and

increased to 30.0% in 2014; the proportion of participated employees (excluding retirees) to total economically active population was 7.96% in 1990 and increased to 32.04% in 2014; the proportion of participated employees (excluding retirees) to total employment was 8.03% in 1990 and increased to 33.05% in 2014; the proportion of participated employees (excluding retirees) to total non-agricultural employment was 20.13% in 1990 and increased to 46.88% in 2014; the proportion of participated employees (excluding retirees) to total employment of employees was 22.14 in 1990 and increased to 52.61% in 2014. If we consider the employment of employees as the target population who must participate in the urban employee basic pension insurance system, then the preceding numbers mean that so far only about half of the people in the labor market who should participate in the urban employee basic pension insurance system has participated in the system. Meanwhile, only a very small proportion of old age people are able to receive pensions. Among all the population aged over 60, currently only around 41.2% of them are able to receive pension; while the proportion of retirees receiving pensions to total population aged over 65 is only around 62.5%.

Table 4 Coverage Rate of the Urban Employee Basic Pension Insurance System for Various Groups of People

Unit: %

	Population age over 15	Economically Active Population	Total Employment	Total Non-Agricultural Employment	Total Employment of Employees
1990	7.46	7.96	8.03	20.13	22.14
1991	8.05	8.55	8.63	21.42	23.27
1992	11.15	11.64	11.75	28.32	30.31
1993	11.40	11.87	11.99	27.49	29.07
1994	12.09	12.47	12.59	27.55	30.43
1995	12.37	12.69	12.84	26.86	30.02
1996	12.25	12.55	12.70	25.66	29.30
1997	12.07	12.25	12.42	24.79	29.47
1998	11.86	11.76	12.00	23.90	31.47
1999	13.05	13.05	13.31	26.67	35.41
2000	14.05	14.12	14.49	28.99	38.97
2001	14.34	14.62	14.84	29.68	40.13
2002	14.57	14.94	15.19	30.37	40.37
2003	15.06	15.55	15.79	31.03	40.60
2004	15.59	16.27	16.50	31.07	41.08
2005	16.62	17.24	17.58	31.84	41.89
2006	17.51	18.52	18.85	32.83	43.15

2007	18.56	19.84	20.16	34.05	44.47
2008	19.94	21.53	21.95	36.34	46.96
2009	21.23	22.89	23.40	37.80	48.59
2010	22.99	24.75	25.49	40.28	50.96
2011	25.39	27.44	28.22	43.28	53.49
2012	27.03	29.13	29.96	45.12	54.51
2013	28.48	30.49	31.41	45.79	52.02
2014	30.00	32.04	33.05	46.88	52.61

Source: Calculated based on *China Statistical Yearbook* in each year.

3. Change of Labor Market and the Urban Employee Pension Insurance System

Construction of the urban employee pension insurance system is of great significance to promote sustainable economic development and maintain social stability. However, due to the acceleration of China's population ageing and the significant changes in the labor market, the sustainability of this system is under a lot of pressure. In order to clarify the direction of perfecting the urban employee pension insurance system, it is necessary to have a comprehensive understanding of the reform process, status quo and sustainability of this system. In this report, first we will roughly card the evolution process of the urban employee pension insurance system. The process is divided into four stages as follows:

The first stage, 1978-1992: The recovery and exploration of the urban employee pension insurance system. In 1978, "State Council Temporary Measures on Workers' Retirement, Resignation" and "State Council Temporary Measures on Providing for Old, Weak, Sick, and Handicapped Cadres" were promulgated. These two temporary measures made unified provisions on the retirement conditions and treatment levels for employees of enterprises and staff of government departments and institutions. This marks that from the point view of regulations and policies, the social security for old age was back to the original track and the pension insurance system began to recover and reform and exploration. Starting in the mid-1980s, in order to be in line with the reform of state-owned enterprises, the reform of the urban social security system started from the pension system. In 1984, a pilot project for social pooling of retirement expenses was launched, implementing unified collection of insurance premiums and unified payment of pensions. The scope of the pilot project gradually expanded from state-owned enterprises to various types of enterprises in urban and rural areas. In 1991, State Council issued "Decisions on Deepening the Reform of the Pension System for Staff and Workers of Enterprises", which made provisions on implementing a pension insurance system

combing the basic pension insurance, enterprise supplementary pension insurance and employees individual savings-oriented pension insurance. In the combined system, the fees will be borne jointly by the State, enterprises and individuals. During this period, the financing mode and cost sharing and other important topics of the pension insurance system have actively discussed and explored. However, the starting point of the reform was limited to supporting the reform of state-owned enterprises and the basic idea of "cast off a burden" dominated the reform, which was not designed from the height of overall socio-economic development.

The second stage, 1993-2000: The initially establishment of the basic framework of the urban employee pension insurance system. In 1993, the Third Plenary Session of the 14th CPC Central Committee adopted "Decision on Some Issues Concerning the Establishment of the Socialist Market Economy", which put forward clear requirements and principles for the reform of social security and called for the establishment of an urban social insurance system combing social pooling with personal accounts. In 1995, the State Council promulgated the "Circular on Deepening the Reform of the Pension System for Staff and Workers of Enterprises", which clearly stipulates that the basic pension insurance system is applicable to staff and workers of all kinds of enterprises in urban and rural areas, and encourages carrying out the pilot projects all over the country. In 1997, the State Council promulgate the "Decision on Establishing a Unified Basic Pension Insurance System for Staff and Workers of Enterprises", which proposed the establishment of a unified pension insurance system combining social pooing with personal accounts. In 2000, the State Council issued the "Pilot Program on Improving the Urban Social Security System", which decided to implement the pilot program in Liaoning province and some cities of several of other provinces. The purpose of the pilot program is to solve the transitional cost of the reform of the pension insurance system and establish a social pooling fund. The state has gradually established a development mode that combines social pooing with personal accounts, hoping to absorb the advantages of both and make up for their shortcomings. Meanwhile, taking the realistic pressure into account, personal accounts were allowed to run empty account during the transition period.

The third stage, 2001-2012: The expansion of the coverage of the urban employee pension insurance system. In the new century, the social security system as an important component of building a harmonious society, the reform of the system has accelerated significant. In 2007, the 17th CPC National Congress proposed to speed up the establishment of social security system to cover urban and rural residents. On the basis of the pilot programs in Liaoning, Jilin, and Heilongjiang the three Northeast provinces in China, the State Council promulgated the "Decision on Improving the Basic Pension System for Staff and Workers of Enterprises", which called for expanding the scope of basic pension insurance, gradually making personal accounts, raising pension funding and payment ability, developing participating policy for self-employed people and flexible employment in urban areas and deciding organizational contributions are no longer include in the personal

accounts. Including migrant workers into the urban employee pension insurance system was put on the agenda. In 2009, the Ministry of Human Resources and Social Security issued "Migrant Workers to Participate in the Basic Pension Insurance Approach", which makes provisions that migrant workers who are urban employment and established labor relationships with employers should participate in the pension insurance. In order to ensure the transfer and continuation of the basic pension insurance relations across provinces for the participants, the State Council decided to implement the "Interim Measures for the Transfer and Continuation of the Basic Pension Insurance Relations of Urban Employees" in 2010. All the participants including migrant workers can transfer the pension insurance relations when they work across provinces; all of the personal accounts and partial social pooling funds can be transferred.

The fourth stage, 2011 to date: The establishment of a unified urban employee pension insurance system. The formal implementation of the "Social Insurance Law of the People's Republic of China" in the July, 2011 marks that China's social security enter into the stage of legalization. The reform of the "dual track system" for the urban employee pension insurance had a major breakthrough. Staff and workers of enterprises and government departments and institutions will be applied to a unified pension insurance system. In 2013, the Third Plenary Session of the 18th CPC Central Committee adopted "Decision on Some Major Issues Concerning Comprehensively Deepening the Reform", which proposed to establish a more fair and sustainable social security system, insist on a combined basic pension insurance system of social pooling and personal accounts, promote the reform of government departments and institutions, perfect the policy of transfer and continuation of the social insurance relations, lower the social insurance rate appropriately in due time, and study and formulate the policy of progressively delaying the retirement age. In 2015, the State Council promulgated the "Decision on the Reform of the Pension Insurance System for Employees of Government Departments and Institutions". Urban employees of government departments and institutions and enterprises were uniformly applied to the basic pension insurance system combining social pooling with personal accounts, which implement the approaches of organizations and individuals making contributions and the pension benefits linking to the contributions. So it will solve the "dual track" contradictions from the system and mechanism.

Through the carding of the revolution of the basic pension insurance system for China's employees, we have an overall understanding of this system; for a more detailed understanding of the development of this system, we take measurements and calculate changes of its contributions and fund revenue and expenditure. The fund revenue of the urban employee basic pension insurance increased from 95 billion yuan in 1995 to 2.53 trillion yuan in 2014, which increased 25 times, with an average annual growth rate of 18.9 percentage points. Among them, from 1995 to 2000, the average annual growth rate was 19%; between 2000 and 2010, the average annual growth rate was 19.4%, between 2010 and 2014, the average annual

growth rate was 17.5%. We can see that the growth rate of the pension insurance fund revenue shows a trend of declining first and then increasing. In terms of the fund expenditure, in 1995, it was 84.76 billion yuan; and it increased to 2.2 trillion yuan, with an average annual growth rate of 18.6%. Stage by stage, the basic pension insurance expenditure shows a process of first declining and then increasing. From 1995 to 2000, the average annual growth rate was 20%; from 2000 to 2010, the rate decreased to 17.4%; from 2010 to 2014, the rate increased to 19.8%. The accumulated balance of basic pension insurance increased from 42.98 billion yuan in 1990 to 3.2 trillion yuan in 2014, with an average annual growth rate of 25.4%. Affected by the combined impact of basic pension insurance fund revenue and expenditure, the average annual growth rate of the basic pension insurance accumulated balance was 17% from 1995 to 2000; the rate was 32% from 2000 to 2012; and the rate was 19.9% from 2010 to 2014. The average annual growth rate of the basic pension insurance accumulated balance shows a trend of first increasing and then declining. Since 2010, the growth rate has been significantly decreased compared to that from 2000 to 2010, which reflects that the basic pension insurance expenditure growths more significantly in recent years.

In terms of the contribution per capita of the urban employee basic pension insurance fund, it has increase 8 times from 1995 to 2014, with an average annual growth rate of 12.3%. The annual growth rate of the contribution per capita shows a declining trend; from 1995 to 2000, the rate was 14.9%, from 2000 to 2010, the rate decreased to 12.2%, and from 2010 to 2014, the rate further decreased to 9.4%. In terms of expenditure per capita, from 1995 to 2014, it increased 5.7 times; the growth shows a trend of first declining and then increasing: from 1995 to 2000, the average annual growth rate was 12%, from 2000 to 2010, the rate decreased to 9.6%, and from 2010 to 2014, the rate increased again to 10.9%. In terms of accumulated balance per capita, from 1995 to 2014, the average annual growth rate is 18.2%. Specifically, from 1995 to 2000, the average annual growth rate was 12.2%; from 2000 to 2012, the rate was 24%; from 2010 to 2014, the rate was 11.7%. After 2010, the average annual growth rate dropped significantly, which was less than half of the growth rate from 2000 to 2010.

Table 5 Contributions and Fund Revenue and Expenditure of the Urban Employee Basic Pension Insurance

Year	Total Participants (10,000 persons)	Total Participated Employees (10,000 persons)	Fund Revenue (Billion yuan)	Fund Expenditure (Billion yuan)	Accumulated Balance (Billion yuan)	Contribution per capita (yuan)	Expenditure per capita (yuan)	Balance per capita (yuan)
1995	10979.0	8737.8	950.1	847.6	429.8	1087.3	3781.9	391.5
1996	11116.7	8758.4	1171.8	1031.9	578.6	1337.9	4375.6	520.5
1997	11203.9	8670.9	1337.9	1251.3	682.8	1543.0	4940.0	609.4
1998	11203.1	8475.8	1459.0	1511.6	587.8	1721.4	5542.5	524.7

1999	12485.4	9501.8	1965.1	1924.9	733.5	2068.1	6451.6	587.5
2000	13617.4	10447.5	2278.5	2115.5	947.1	2180.9	6673.7	695.5
2001	14182.5	10801.9	2489.0	2321.3	1054.1	2304.2	6866.5	743.2
2002	14736.6	11128.8	3171.5	2842.9	1608.0	2849.8	7879.9	1091.2
2003	15506.7	11646.5	3680.0	3122.1	2206.5	3159.7	8087.9	1422.9
2004	16352.9	12250.3	4258.4	3502.1	2975.0	3476.2	8536.3	1819.2
2005	17487.9	13120.4	5093.3	4040.3	4041.0	3882.0	9250.8	2310.7
2006	18766.3	14130.9	6309.8	4896.7	5488.9	4465.2	10563.7	2924.9
2007	20136.9	15183.2	7834.2	5964.9	7391.4	5159.8	12041.3	3670.6
2008	21891.1	16587.5	9740.2	7389.6	9931.0	5872.0	13933.3	4536.5
2009	23549.9	17743.0	11490.8	8894.4	12526.1	6476.2	15317.0	5319.0
2010	25707.3	19402.3	13419.5	10554.9	15365.3	6916.4	16740.6	5977.0
2011	28391.3	21565.0	16894.7	12764.9	19496.6	7834.3	18699.7	6867.1
2012	30426.8	22981.1	20001.0	15561.8	23941.3	8703.2	20900.4	7868.5
2013	32218.4	24177.3	22680.4	18470.4	28269.2	9380.9	22970.1	8774.2
2014	34124.4	25531.0	25309.7	21754.7	31800.0	9913.3	25315.6	9318.8

Note: Contribution per capita=Fund revenue/Total participated employees, Expenditure per capita= Fund expenditure/(Total participants-employees), Balance per capita=Accumulated balance/Total participants.

Source: same as Figure 2.

Table 6 Growth of Contributions and Fund Revenue and Expenditure of the Urban Employee Basic Pension Insurance

Unit: %

Time Period	Fund Revenue	Fund Expenditure	Accumulated Balance	Contribution per capita	Expenditure per capita	Balance per capita
1995-2014	18.86	18.63	25.42	12.34	10.52	18.16
1995-2000	19.12	20.07	17.12	14.94	12.03	12.18
2000-2010	19.40	17.44	32.13	12.23	9.63	24.00
2010-2014	17.19	19.82	19.94	9.42	10.89	11.74

Source: same as Figure 2.

As shown in Table 7, we calculate the fund revenue and expenditure of the urban employee basic pension insurance by province. First, in terms of fund revenue, overall, from 2001 to 2014, the average annual growth rate of fund revenue was around 20% for all provinces. Specifically, Chongqing grew fastest, with an average annual growth rate of 24.5%; Tibet grew the slowest, with an average annual growth

of only 16.0%; and the growth rate of western region was higher than that of central region, while the growth rate of eastern region was the lowest. Second, the average annual growth rate of fund expenditure was around 18% for all provinces. Specifically, Sichuan and Chongqing had the highest average annual growth rate of 23%; while Tibet had the lowest average annual growth rate of 12%. The fund expenditure growth rate of western region was higher than that of central region, while the growth rate of eastern region was the lowest. Last, in terms of the growth rate of fund accumulated balance, the fluctuations among all provinces are large. Specifically, Tibet had the highest growth rate of 93.5%; and Heilongjiang had the lowest growth rate of only 17.6%. The growth pattern of the three regions is still the highest in the western region, followed by the central region, and the lowest in the eastern region.

Table 7 Fund Revenue and Expenditure of the Urban Employee Basic Pension Insurance by Province

Units: Billion yuan, %

	Fund Revenue			Fund Expenditure			Fund Accumulated Balance		
	2014	2001	2001-2014 Growth Rate	2014	2001	2001-2014 Growth Rate	2014	2001	2001-2014 Growth Rate
Beijing	1331	117	20.6	842	111	16.9	2161	22	42.2
Tianjin	534	56	19.0	492	55	18.4	362	11	30.9
Hebei	959	106	18.5	953	97	19.2	819	52	23.7
Shanxi	664	58	20.6	556	51	20.1	1233	24	35.2
Inner Mongolia	502	43	20.7	486	42	20.7	472	16	29.5
Liaoning	1534	192	17.3	1478	179	17.6	1284	41	30.3
Jilin	519	69	16.8	517	68	16.8	424	8	35.8
Heilongjiang	922	125	16.6	1028	110	18.8	323	39	17.6
Shanghai	1689	217	17.1	1506	236	15.3	1260	93	22.2
Jiangsu	1923	148	21.8	1584	146	20.2	2854	57	35.1
Zhejiang	1619	136	21.0	1220	110	20.3	2696	96	29.2
Anhui	657	60	20.3	520	57	18.6	882	15	36.7
Fujian	453	53	18.0	379	51	16.8	490	32	23.2
Jiangxi	490	41	21.1	445	41	20.2	430	16	29.1
Shandong	1673	183	18.5	1558	170	18.6	1973	104	25.4

Henan	923	83	20.4	831	88	18.8	931	21	33.8
Hubei	978	83	20.8	951	82	20.7	822	15	35.8
Hunan	812	68	21.0	730	70	19.8	879	23	32.2
Guangdong	2059	204	19.5	1289	134	19.0	5444	206	28.6
Guangxi	414	37	20.3	412	34	21.2	448	25	24.8
Hainan	141	16	17.9	139	15	18.8	104	7	23.2
Chongqing	678	38	24.9	574	39	23.0	662	7	41.6
Sichuan	1577	95	24.2	1313	89	23.0	2013	41	34.9
Guizhou	260	30	18.1	208	27	17.2	407	20	26.0
Yunnan	358	51	16.2	288	53	13.9	573	12	34.8
Tibet	23	3	16.0	15	3	12.1	40	0	93.5
Shaanxi	576	55	19.8	543	51	20.0	446	8	35.9
Gansu	298	37	17.3	259	37	16.2	361	8	33.7
Qinghai	93	13	16.7	91	12	16.5	84	1	44.0
Ningxia	117	11	19.7	118	10	21.1	165	7	26.9
Xinjiang	526	62	17.9	426	54	17.2	745	21	31.6
Eastern Region	13915	1427	19.1	11438	1303	18.2	19446	722	28.8
Central Region	5964	587	19.5	5577	567	19.2	5924	162	31.9
Western Region	5423	475	20.6	4733	451	19.8	6417	168	32.4

Source: same as Figure 2.

Furthermore, we calculate fund balance per capita of the urban employee basic pension insurance and its growth. Overall, the unbalanced regional development problem of the urban employee basic pension insurance is significant. As shown in Table 8, the provincial differences of fund balance per capita in 2014 were large. The highest province was Tibet, which reached to 26,495 yuan; while the lowest province was Heilongjiang, which was only 2,966 yuan. In terms of the growth, the provincial differences between the two levels of differentiation are very significant. From 2010 to 2014, the growth rate of Tibet, which was the fastest growing province, reach 282%; the growth rates of Beijing and Fujian were more than 25%; but the growth rates of Heilongjiang and Guangxi were even negative. From the point view of three regions, the growth rate of balance per capita in eastern region

was higher than that in central region and western region; the growth rate in eastern region was 12.7%, and the growth rate in central region was 9.3% which was lower than the rate in western region of 11%. The growth rate of balance per capita is basically in line with that of economic development. In the areas with high levels of economic development, financial investment is relatively sufficient and the growth of balance per capita is relatively fast. Heilongjiang and Jilin in the northeast are facing difficulties in economic development, so that the financial subsidies are unsustainable, resulting in a very low growth rate of balance per capita or even a negative growth rate. In addition, population mobility is also an important factor affecting the growth rate of balance per capita. Due to the problem of pension insurance regional segmentation, in the province with large net inflow of population, the systematic dependency rate of pension insurance is relative low and the current year fund balance is larger, which leads to faster growth of balance per capita.

Table 8 Growth of Fund Balance per capita of the Urban Employee Basic Pension Insurance by Province

	Balance per capita in 2014 (yuan)	Balance per capita in 2010 (yuan)	Growth Rate of Balance per capita 2010-2014 (%)
Beijing	15516	6297	25.29
Tianjin	6631	4705	8.96
Hebei	6489	5695	3.31
Shanxi	17814	10785	13.37
Inner Mongolia	8983	5988	10.67
Liaoning	7257	4939	10.10
Jilin	6265	5868	1.65
Heilongjiang	2966	5030	-12.37
Shanghai	8645	4402	18.38
Jiangsu	10604	6256	14.10
Zhejiang	10579	6827	11.57
Anhui	10636	5273	19.18
Fujian	5779	2222	27.00
Jiangxi	5491	3351	13.14
Shandong	8324	6078	8.18
Henan	6505	4623	8.91
Hubei	6488	4112	12.08

Hunan	7852	4856	12.77
Guangdong	11320	7687	10.16
Guangxi	8035	8435	-1.21
Hainan	4279	3590	4.49
Chongqing	8019	4374	16.36
Sichuan	10944	7137	11.28
Guizhou	11266	6914	12.98
Yunnan	14402	7224	18.82
Tibet	26495	9798	28.24
Shaanxi	6219	3921	12.22
Gansu	12085	7348	13.24
Qinghai	8915	6801	7.00
Ningxia	10920	10083	2.01
Xinjiang	15176	9794	11.57
Eastern Region	9754	6056	12.65
Central Region	7509	5260	9.31
Western Region	10227	6732	11.02

Source: same as Figure 2.

The urban employee basic pension insurance system has high contribution rate, low level of integration, and difficulty of transferring and carrying. A lot of people think that this system will eventually be unsustainable or even collapse. Especially, the current pension empty account problem is further exacerbated people's doubts. The urban employee basic pension insurance system adopts a funding mode combined personal accounts with social pooling. However, when the benefits are calculated and issued, the personal accounts and social pooling fund are mixed together, so that it actually runs on a pay-as-you-go basis. As a result, personal accounts are basically empty account. Some people called the total amount of these empty accounts adding up as pension gap. Some studies have shown that the pension gap in China is as high as 18 trillion yuan (Cao, 2012), but a more reasonable estimate is around 2 trillion yuan (Zheng, 2012).

The problem of pension gap is getting more and more social attention and constantly hyped by the media, but to be fair to say that this problem is far less serious than that of many people images. The "gap" does not have impacts on actual pensions calculation, because the gap only happens in the case that personal

accounts are fully funded; while the “gap” in the process of pensions issued won’t happen in the case that the personal accounts are not fully funded. In fact, no matter from the perspective of the calculation of the treatment, or from the perspective of the management and operation of the pension, it is not necessary for China’s pension insurance to make the personal accounts fully funded. The problem of pension gap actually does not exist, which is only an institutional “gap” and the “gap” will disappear due to changes in the system. However, with the increase of population ageing and the number of retirees, the pressure on the payment of pension is larger and larger; and it is an indisputable fact that the pension burdens borne by workers are increasing. Next let’s take a look at what the specific changes of pension burden of the urban employee basic pension insurance are.

Although the coverage of the urban employee basic pension insurance has been expanding and more and more employees have participated in contributions, the increasing of retirees is faster, so that it results in a decline of the number of contributing participants corresponding to supporting one retiree. In 1990, the number of contributing participants corresponding to supporting one retiree was 5.2; in the mid-1990s, the number decreased to around 4; while by 2014, the number was only around 3. In the case of contribution rate unchanged, the decline of the number of contributing participants needed to support one retiree constitutes an increase of the pressure on pension payment. As more people reaching the retirement age in the future, the number of contributing participants needed to support one retiree will further decline and the pressure on pension payment will further increase. In the short term, reducing the pressure on pension payment and the burden rate on each contributing participant can be achieved by expanding coverage of the pension insurance. Because so far half of the wage earners (employees) who should participate are still not covered by the system, which indicates that the urban employee basic pension insurance system still has the potential for development. In 2014, one retired old person corresponds to 5.6 employees, 6.3 non-agricultural employed persons, 9.0 employed persons, and 10.8 working-age population aged 15-59. However, from the perspective of the trend, these potentials are also showing a gradual declining trend (see Table 9).

Table 9 Numbers of Various Types of Staff Corresponding to Supporting One Retiree

Unit: Person

Year	15-59	Employed Persons	Non-agricultural Employed Persons	Employees	Contributing Participants
1990	75.5	67.1	26.8	24.3	5.4
1991	67.3	60.3	24.3	22.4	5.2
1992	44.0	39.3	16.3	15.3	4.6
1993	40.8	36.3	15.8	15.0	4.4
1994	36.4	32.4	14.8	13.4	4.1

1995	34.1	30.4	14.5	13.0	3.9
1996	33.0	29.2	14.5	12.7	3.7
1997	31.4	27.6	13.8	11.6	3.4
1998	29.5	25.9	13.0	9.9	3.1
1999	27.3	23.9	11.9	9.0	3.2
2000	26.2	22.7	11.4	8.5	3.3
2001	24.9	21.5	10.8	8.0	3.2
2002	23.8	20.3	10.2	7.6	3.1
2003	22.6	19.1	9.7	7.4	3.0
2004	21.7	18.1	9.6	7.3	3.0
2005	20.2	17.1	9.4	7.2	3.0
2006	19.3	16.2	9.3	7.1	3.0
2007	18.3	15.2	9.0	6.9	3.1
2008	17.2	14.2	8.6	6.7	3.1
2009	15.8	13.1	8.1	6.3	3.1
2010	14.9	12.1	7.6	6.0	3.1
2011	13.8	11.2	7.3	5.9	3.2
2012	12.6	10.3	6.8	5.7	3.1
2013	11.6	9.6	6.6	5.8	3.0
2014	10.8	9.0	6.3	5.6	3.0

Source: same as Table 4.

In the case that the pressure on pension payment is increasing, the pension received by the retirees continue to shrink and the pension replacement rate continues to decrease. Since the statistics department did not publish the wage data covering all wage earners, there is no uniform argument on how high the pension social average dependency rate is. The author used the data from the National Bureau of Statistics to calculate the total number of wage earners and the total amount of labor compensation (Zhang, 2012), and then calculate the average wage level of all employees (wage earners) based on this (see Table 10). According to the author's estimates, in 1990, the monthly average pensions received by the retirees was 129 yuan, accounting for around 78% of the average wage of all employees. After that, this proportion has gradually decreased. In 2000, this proportion dropped to around 68% and in 2010, this proportion decreased to around 70%. On average, this proportion declined one percentage point annually. If using the average wage of urban employees as the denominator, the pension replacement rate decreased much faster, which dropped from 72.29% in 1990 to 47.3% in 2013. From the perspective of the world standard, the current pension replacement rate has decreased to a relatively low level. A further decrease will not only bring retirees

living difficulties, but also make the system lose its effects. How to make the pension replacement not further decrease has become an urgent problem needed to address in order to maintain the urban employee basic pension insurance system.

Table 10 Average Changes of Wage Level of Wage Earners and Pension

Year	Monthly Average Wage of All Employees (yuan)	Monthly Average Wage of Urban Employees (yuan)	Monthly Average Pensions Received by Retirees (yuan)	Proportion of Pension to Average Wage of All Employees (%)	Proportion of Pension to Average Wage of Urban Employees (%)
1990	165	178	129	78.33	72.29
1991	184	195	133	72.14	68.07
1992	215	226	160	74.06	70.62
1993	253	281	213	84.28	75.90
1994	348	378	265	76.08	70.06
1995	428	458	315	73.56	68.76
1996	496	518	365	73.59	70.46
1997	557	539	412	73.96	76.35
1998	660	623	462	70.04	74.11
1999	736	696	538	73.07	77.30
2000	816	781	556	68.18	71.22
2001	909	906	572	62.98	63.17
2002	1070	1035	657	61.37	63.43
2003	1181	1170	674	57.09	57.61
2004	1296	1335	711	54.88	53.27
2005	1399	1530	771	55.10	50.37
2006	1556	1750	880	56.57	50.30
2007	1793	2078	1003	55.96	48.30
2008	1971	2436	1161	58.91	47.67
2009	2147	2728	1276	59.45	46.79
2010	2366	3096	1395	58.95	45.07
2011	2603	3538	1631	62.66	46.10
2012	2876	3966	1870	65.02	47.15
2013	2934	4366	2054	70.01	47.05
2014		4780	2262		47.32

Source: (1) *China Statistical Yearbook* in each year from National Bureau of Statistics of the People's of China (2) ZHANG Juwei, 2012

4. Sustainability of the Pension Insurance System and Suggestions for its Reform

The pension replacement rate should not be too high, or too low; too high will lead to “welfare disease”, affecting social vitality, while too low will be difficult to guarantee the basic livelihood after retirement. In the early 1990s, the social average replacement rate of China’s pension was more than 70%, which was at a relatively high level; but now the replacement rate decreased to less than 60%. From the perspective of international experiences, the current replacement rate is almost the same as that of most countries in the world, which is at a reasonable level; but if further decreases, then the pension replacement rate will be relatively low so that the basic livelihood of the elderly is difficult to guarantee (Chu, 2004).

To achieve the goal that the pension replacement rate does not decrease, simply speaking, there could be several approaches as follows. The first one is to expand coverage, the second one is to raise the contribution rate, and the third one is to find other sources of funding. The expansion of coverage is not only the need of developing the urban employee basic pension insurance system, but also help to stabilize or improve the pension replacement rate. But this is not a final solution of the problem. Because the expansion of coverage means that the increase of the number of pensioners in the future, when the coverage cannot expand, the increasing number of retirees will inevitably lead to the decrease of the replacement rate. Therefore, expanding the coverage is not the fundamental approach to improve or stabilize the pension replacement rate. Is it feasible to raise the contribution rate? The proportion of the added up contribution rate (individual contributions and employee contributions) of China’s current various types of insurance systems to total wages is as high as around 42.5%, which is among the highest in the world. The employer or the enterprise is responsible for about 30% of the total wages, resulting in the increase of labor costs and affecting the competitiveness of enterprises. Thus, to further raise the contribution rate is not only impossible, on the contrary, it seems that now is the time to explore how to reduce the contribution rate. Now there left only the third approach, which is to find more sources of funding. China’s urban employee basic pension insurance system adopts the funding model of individual and organization’s contributions. The government takes the fallback responsibility of the pension insurance fund, but this responsibility is not clarified in the system. Only in the place where the payment of pension insurance fund has gap, the government will provide some financial subsidies. The government does not provide a stable financial support to the pension insurance fund from the perspective of financing. From the perspective of the system design, the urban employee basic pension insurance fund does not seem to need financial investment. However, in reality, the government’s financial subsidies always exist. But the subsidy financial funds are always temporary and casual, which is neither normative nor unreasonable. More importantly, the other

two systems—the new rural pension insurance system and the urban resident pension insurance system—operating with the urban employee basic pension insurance system establish stable financial investment mechanisms. It should be said that the urban employee basic pension insurance system lacking stable financial investment mechanism is not only unfair, but also will bring the difficulties for transfer and continuation of pension insurance rights between systems. In the long term, establishing a stable investment mechanism of the government financing the urban employee basic pension insurance system is not only the need to ensure the sustainability of the system, but also the need to perfect the social security system for old age.

As a socialist country, in addition to general fiscal revenue, China's income has two parts belonging to all citizens, but these two parts are not being used reasonably. One part of the income is the income of the state-owned economy; another part is the income of huge foreign exchange reserves. In 2011, the total accumulated profits of state-owned enterprises were 2,255.68 billion yuan and the total accumulated net profits of state-owned enterprises were 1,963.26 billion yuan, of which the net profits belonging to parent company owners were 1,146.08 billion yuan. If using 50% of the net income of state-owned enterprises as the urban employee basic pension insurance fund, then in 2011, it will inject capital of more than 500 billion, which is equivalent to nearly one-third of the contribution income of national urban employee as 1.689 trillion yuan in 2011. Meanwhile, in 2011, China's foreign exchange reserves was 3.18 trillion U.S. dollars. Using the rate of return as 5%, the annual income should be more than 150 billion U.S. dollars, which is equivalent to about 1 trillion yuan. If using half of the annual income as pension insurance fund, then it will increase the fund revenue 500 billion yuan. The income of state-owned enterprises and the income of huge foreign exchange reserves can stably finance 1 trillion for the pension insurance fund. The additional income obtained from these two sources of income by pension insurance fund not only will not increase the burden of organizations and individuals, but also can fundamentally solve the sustainability problem of the urban employee basic pension insurance system. This will promote social equity and play a role in narrowing the income gap. When other countries are facing the difficulty how to finance for the increasingly serious population ageing, the advantage of the unique system can help China to establish a unique pension insurance system in the world.

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