



Redistributive effects of social security system in China

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August 2016

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I. Introduction

While China's economy is entering a new normal stage, social security will play an increasingly important role in economic growth, the balance of income distribution, poverty alleviation and maintenance of social stability. The experience of developed countries shows that with the development of economy, the social security system in the redistribution of income has become more obviously important, becoming one of the means of income redistribution with government taxes.

However, China's social security system in the adjustment of income distribution is quite limited. Therefore, the current social security system needs further reform, not only to achieve full coverage of the social security system, but also to reduce the difference between different groups in the same security system program, to further increase the redistributive effect of the social security system.

Over the past thirty years, the growth of China's economy is quite fast, from the point of view of GDP and family income. Between 1978 and 2008, the average growth rate of GDP was close to 10% annually, and the average growth rate of household income in urban and rural areas was 8%. In recent years, economic growth has declined, but still maintained at a level of more than 6%, compared to other countries have been quite good performance. By the end of 2015, according to the current exchange rate calculation, China's per capita GDP reached 7500 U.S. dollars, becoming an upper-middle-income countries. China has made significant progress in economic growth, but the social development, especially the reconstruction of social security and welfare system is still lagging behind, and there are still inadequate policies of income distribution. The fragmentation of the social

security system still exists, the social security benefits of different groups of people have a huge difference, and even played a role in the expanding income inequality.

Although China has made great achievements in poverty alleviation, but has made little progress in terms of narrowing the income gap. Whether it is in urban areas, in rural areas, or in China as a whole, the income gap is far greater than that at the initial stage of reform. The country's current Gini coefficient is estimated to be around 0.47, although it has declined from the highest level in 2008. But compared to 0.30 in the early 1980s, the current Gini coefficient is still at a very high level. At the same time, the Gini coefficient of household income distribution in rural areas rose from 0.26 in 1980 to 0.40 in 2013, and the urban Gini coefficient increased from 0.16 in 1978 to 0.39 in 2013.

China's poverty rate has dropped significantly over the past forty years, but poverty remains a serious social problem. By the end of 2015, China's rural areas still have more than about 50 million of the poor. This is only measured in accordance with the income standard of poverty. If the standard of the multidimensional poverty would be applied, the rural poor people will be much more than that measured by the income standard. There are still a large number of rural families, although their income level is higher than the official poverty line, actually fall into poverty shocked by the disease and natural disasters.

Moreover, the Chinese consumption as a share of the GDP continued to decline since the middle of 90s, partly because of lower proportion of labor income, partly because of the reduction in the average propensity to consume. Propensity to consume tends to decline is largely due to the increasing uncertainty in the expenditure of households on health care, education and housing, especially those that have not been covered by the social security system. Under the impact of the global financial crisis, the government started from the second half of 2008, to stimulate domestic demand with unremitting efforts, but the focus on increasing investment rather than stimulating consumption. Therefore, to achieve full coverage of social security, reduce the difference in social security benefits, raise the level of social protection will help stimulate the consumption of households.

China's aging population is at accelerating increase. According to data released by the National Bureau of statistics, China has 1.37 billion population in 2014, and 212 million population aged 60 years old and over, 15.5% of the total population; 137 million aged 65 and over, accounting for 10.1% of the total population. In accordance with international standards, China has undoubtedly become an aging society. The aging process presents a serious challenge to China's security system, which requires the social pension system to be more sustainable and equitable.

In order to solve the economic and social problems above, the establishment of a fair and full coverage of social security is a wise choice of the Chinese government in 13th Five-Year Planning. This view has formed a broad consensus in the Chinese society. However, how to make the social security system more effective reducing income inequality and poverty, is still the priority issues in the reform of social security system.

The paper is structured as follows. The next section discusses the major challenges faced currently by China. The challenges are that the income gap is too large, the reform of social security system is not in place. Thus to enhance the fairness of the social security system is helpful to narrow the income gap at the same time, also helps to deal with these challenges. The third section discusses some of the main functions of social security, with special emphasis on its role in redistributing income and alleviating poverty. The fourth section is the empirical analysis, showing the effect on the income redistribution of the social security system in China. Due to the limit of the data, here is mainly to investigate the effect of pension system. This is also the core content of this paper. The fifth section is the international comparison, comparing the income redistribution of the social security system between China and Europe. The last section presents the conclusions and the policy recommendations.

II. China's current social and economic challenges

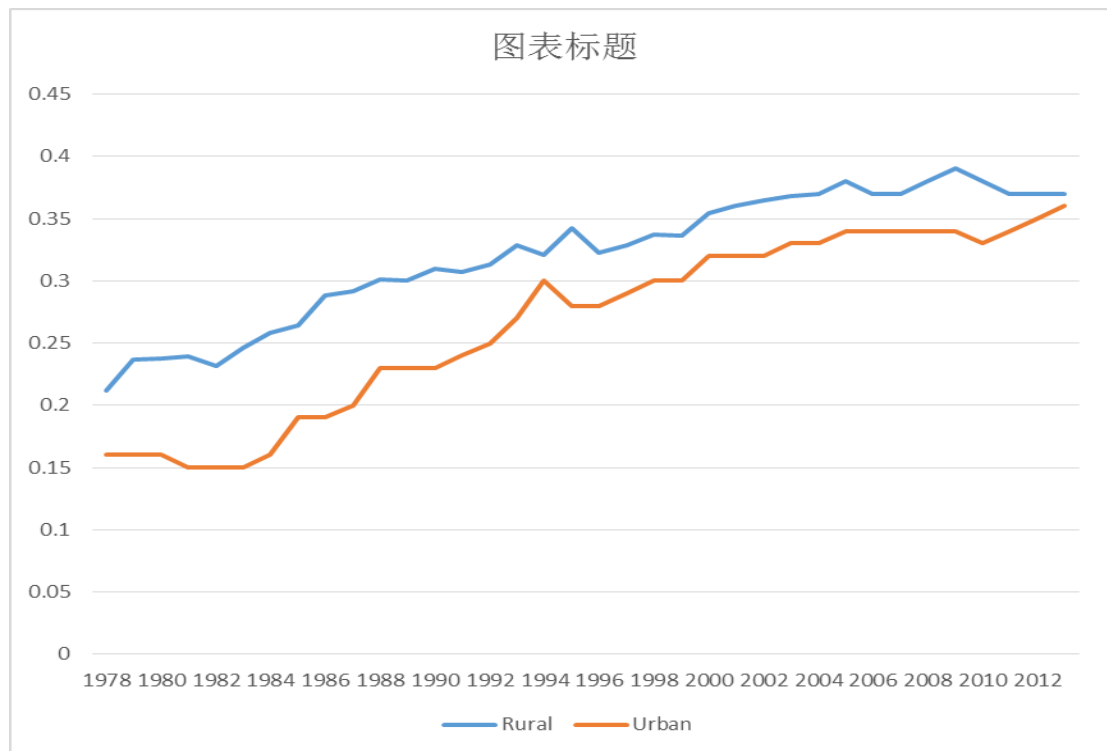
China's current social and economic challenges, including a large income gap, poverty, a sharp decline in the propensity to consume, increase social conflicts and social instability. There is no doubt that these challenges must be fully recognized and dealt with effectively.

1. High income inequality

China was an egalitarian country 30 years ago, but from the beginning of 1980s, China's income gap has widened sharply. As a developing country, China has implemented different economic and social policies for urban and rural areas, leading to huge disparity between urban and rural households in terms of the income level, accessibility of social security and public service and human development (Riskin et al Gustafsson et, 2001; Al, 2008). Regarding income inequality, different estimates show that the income gap within urban and rural areas in China has increased significantly since the beginning of 1980s . For example, according to the comparable estimates of the household data, the Gini coefficient of urban household income rose from 0.16 in 1978 to 0.37 in 2013, and the rural Gini coefficient rose from 0.22 to 0.38 at the same period, as shown in figure 1. The income gap between urban and rural areas in the past fifteen years also showed a

trend of rising first and then declining. As shown in Figure 2, in 2001 the per capita income of urban households is 2.9 times of the per capita income of rural households and reached to 3.34 times in 2009, the highest level in history. In the following years the income gap between urban and rural areas has decreased slowly, but it is still higher than the level of the beginning of economic reform and opening up.

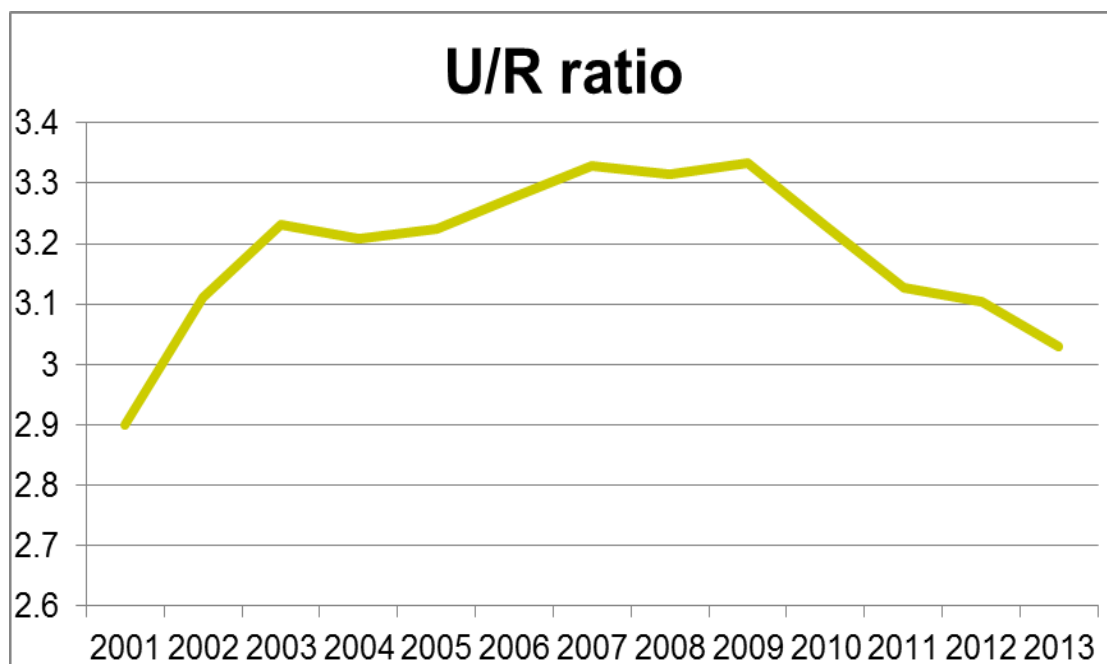
Figure 1: Gini coefficient of income inequality in urban and rural China, 1978-2013



Sources: NDRC, 2014.

The Gini coefficient of national income gap, in the first 30 years of reform and opening up (1978-2008) is basically in a rising trend, from 0.30 in 80s to 0.491 in 2008, reaching the highest point in history. In the later years, the expansion of the national income gap has been under control, and the Gini coefficient has declined. By the end of 2015 the national income gap between the Gini coefficient decreased to less than 0.47.

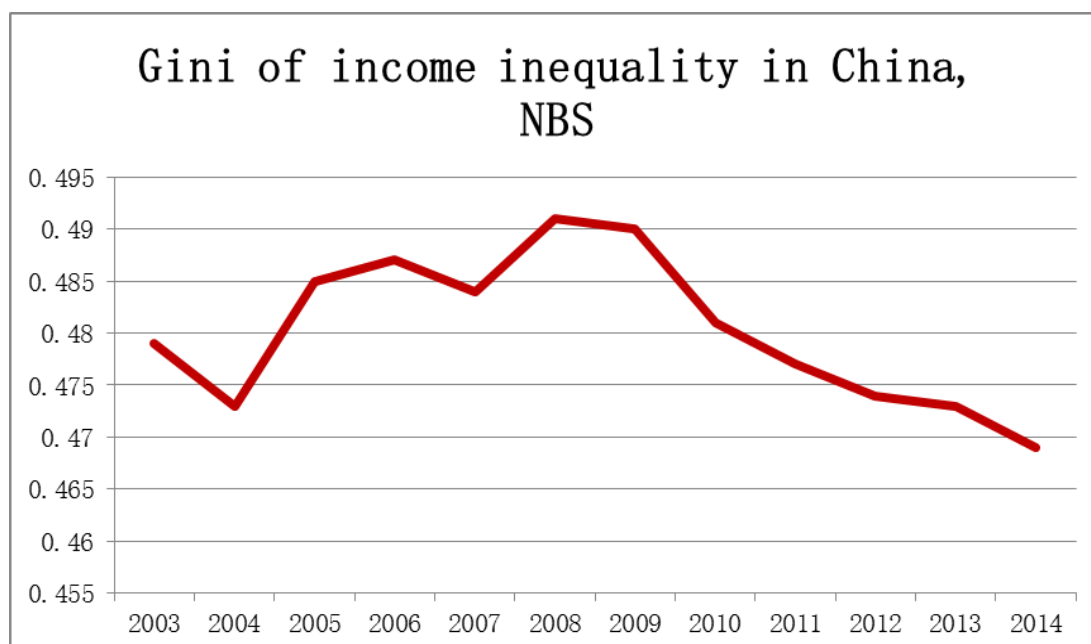
Figure 2: Urban-rural income gap in China, 2001-2013



Sources: NBS, China Statistical Yearbook, 2015.

However, the income gap is still at a high level, and the problem of unfair income distribution has not been fundamentally resolved, not to establish a fair and orderly income distribution system, so rise of the income gap has potentially happened in the future. In the face of these problems, the reform of China's income distribution system still needs to be pushed forward, and through the reform of the social security system, so the redistribution function is one of the important policy options.

Figure 3: Gini coefficient of income inequality in China as a whole, 2003-2014



Sources: NBS, China Statistical Yearbook, 2015.

2. A large number of poor people

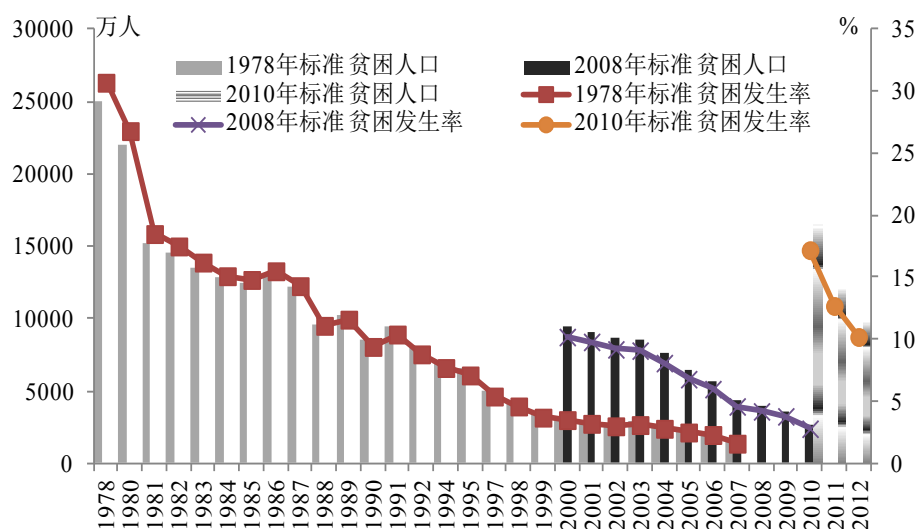
Over the past 40 years, China has achieved great success in helping the poor. No matter what the use of poverty lines, since the late 1970s, the decline in the size of the poor population has more than 90%. In the past 5 years, the rural poor population continued to decline, and is less than 60 million by the end of 2015 (see Figure 4). In 2011, the Chinese government raised the poverty line in rural areas, which was determined to be 2100 yuan / person / day in 2010. The new poverty line is equivalent to one of 2 U.S. dollars / person / day that the world bank promotes. According to the new poverty line, in 2010 China's rural poverty population was about 150 million, the poverty rate was 17%. In the past 5 years, the rural poor population continued to decline, to 2015 is less than 60 million.

However, poverty is still a major social problem in China, especially in rural areas. As is known, China's poverty line is only a dimension of income / consumption, not a multidimensional poverty line. If in accordance with the multi-dimensional criteria to estimate the poverty status of rural China, rural poor families have increased significantly. In addition to income / consumption poverty, there are a considerable number of rural people in health and education poverty, and housing poverty.

Among the rural poor, the elderly and children need more attention. As in other countries, the incidence of poverty among the elderly in China is higher than that of other people. According to a Research Report of Beijing Normal University, "The new situation of rural poverty structure", the current rural elderly poverty rate is higher than the average level by 5%, while the child poverty rate higher than the average by 10%. To eradicate the poverty of these special people, it is not enough to

solve their income poverty. To provide affordable health care and education for these people are often essential.

Figure 4: Rural poor population and poverty rate with different official poverty lines



Sources: NBS, 2014.

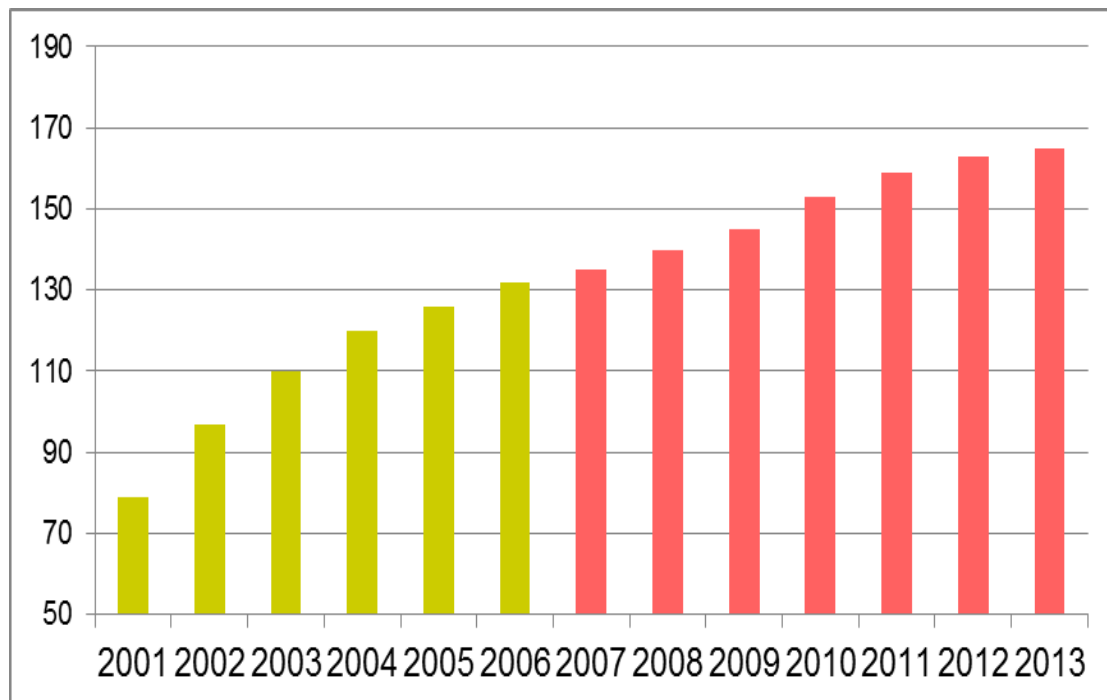
3. A large number of rural-urban migrant workers

From the beginning of 1990s, China has accelerated the process of urbanization. A large number of rural labor force moved to urban areas, but the vast majority of them are still bird migration, between urban and rural areas. By 2013, the agricultural labor force engaged in non-agricultural employment (migrant workers) has been close to 300 million, 170 million of which in the town (See Figure 5). In addition, there is a part of rural migrant population such as migrant children and the elderly. Coupled with this population, the total number of floating population from rural areas in cities and towns are more than 200 million.

At present, China's urbanization rate is less than 60%, which means that the urban and rural labor force will continue to flow in the next 20 years. Most of the migrant population is with low educational level, lack of skills, high mobility, but low income, uncovered by the social security system (Li, 2008; Deng Quheng, Li Shi, 2009; Li Shi, Xing Chunbing, etc., 2016).

Due to the floating population with registration (hukou) in rural areas, their employment opportunities in the urban labor market, wages, social security and public services are at a disadvantage. Over the next ten years, it is a major challenge for the Chinese government to solve the problem of large-scale labor migration.

Figure 5: Number of rural-urban migrant workers (million)

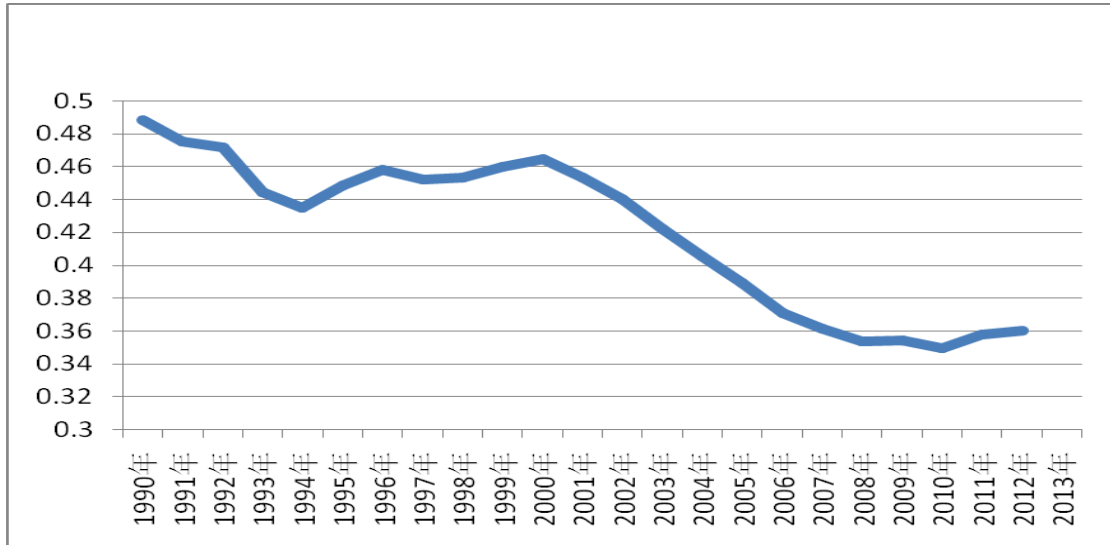


Sources: NBS, 2015.

4. Declining propensity to consume

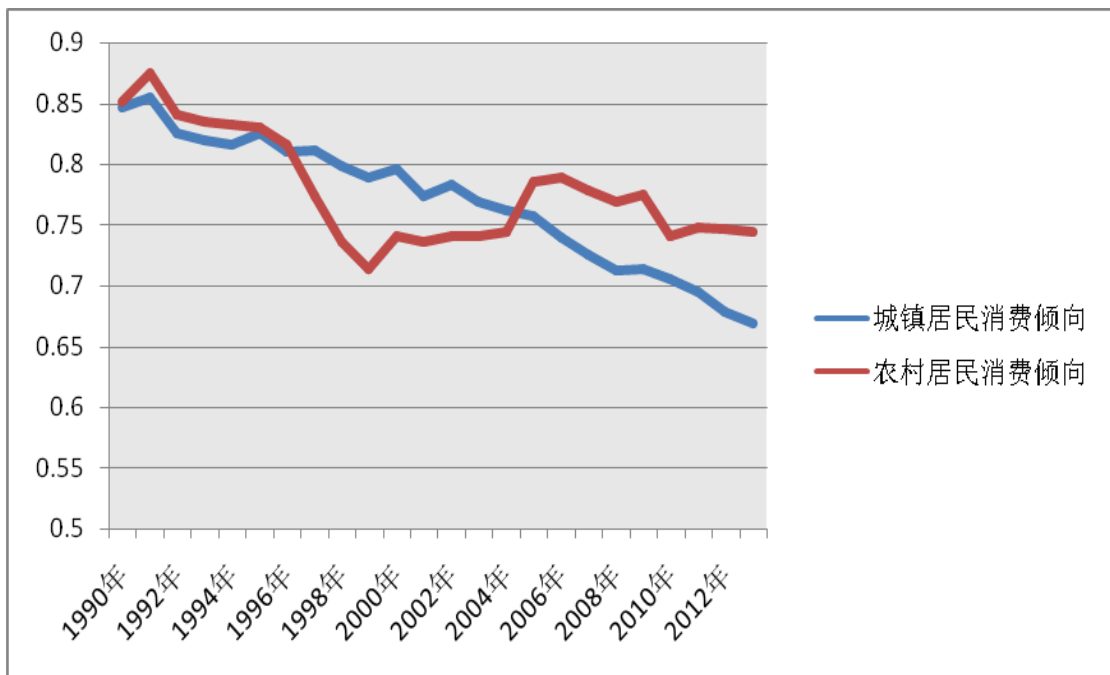
From the beginning of the new century, China's share of consumption in national income has declined sharply. Consumption as a share of the national income fell from 62% in 2010 to 48% in 2000, down by 14 percentage points in ten years (see Figure 6). Although in recent years China consumption share has a slight rise, but still at a very low level. From the perspective of consumption structure, the main factor resulting in a decline in consumption share is the rapid decline in the proportion of household consumption.

Figure 6: Consumption as a share of national income in China



Sources: NBS, 2015.

Figure 7. Propensity to consume of rural and urban households in China



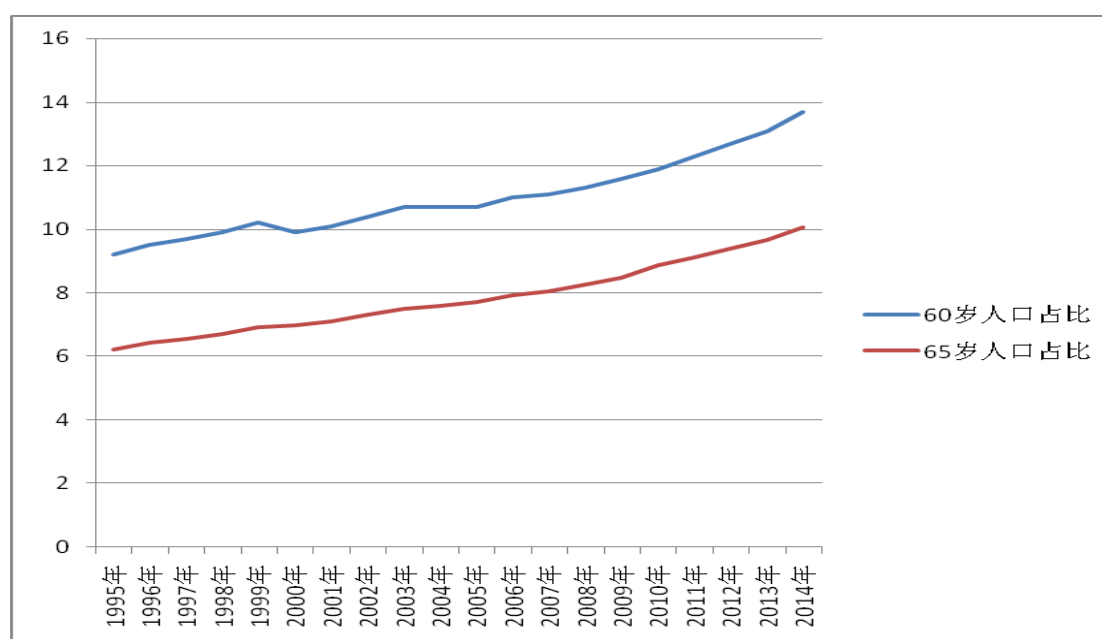
Sources: NBS, 2015.

Since 90s, the share of urban residents' consumption in the total consumption of the whole society increased by nearly 17 percentage points, while the share of rural residents' consumption fell by nearly 13 percentage points. The cause on the one hand, is urban population increase, and on the other hand, the expansion of income gap between urban and rural areas caused by the relative decline in consumption level of rural residents.

5. Accelerated aging society

In the past 20 years, China's aging process is beyond expectations, and especially in recent years, there has been an accelerated aging process. During 1995-2014, the proportion of population aged 65 and over rose from 6.2% to 10.1%, up nearly 4 percentage points; the 60-year-old population and over as a proportion of the total population rose from 9.2% to 13.7%, an increase of 4.5 percentage points.

Figure 8: Aging process in the Chinese society (aging population as %)



Sources: NBS, 2015.

III. Major functions of social security

The major functions of social security in a society can be summarized as follows.

(1) Insurance. Social security consists of two main parts, social insurance and social relief. Social insurance usually refers to unemployment insurance, medical insurance and pension insurance and other social transfer projects (Feldstein, 2005). For China, due to the economic transformation process in employment, income mobility and health uncertainty, social security plays an important role in reducing these risks.

(2) Poverty alleviation. The experience of China and other developing countries shows that without social security and social support, the poor are difficult to get out of poverty. Modern poverty theory also points out that poverty itself is prone to

poverty, when the poor people trapped in poverty will lead to more poverty (Bowles, etc., 2006). In the absence of public services provided for the poor, poverty, illiteracy, and (or) disease form a vicious circle.

(3) Redistribution of income. Social security has the function of redistribution of income, but in the design of the system, whether the redistribution function should be given priority is still controversial (Feldstein, 2005). In theory, social security has a direct and indirect effect of redistribution. The direct role is not so obvious, but the indirect effect can not be ignored.

(4) Smoothing consumption. Social security, such as pension insurance, in the long run, has a significant effect on the individual's consumption smoothing, also known as the piggy bank function (Barr, 2004). The volatility of income inevitably lead to consumption volatility, therefore, social security such as unemployment insurance, medical insurance and subsistence allowances and other income relief , has a strong effect on household consumption smoothing, especially for low income families.

(5) Stimulating consumption. In the long run, it is especially important for countries like China experiencing the falling consumption trend. Under the impact of the international financial crisis, China's export industry has been seriously affected, a significant reduction in export growth. Recently, Chinese economists and sociologists have called on the government to expand the social security and public services, to reduce the risk of consumers and the entire life cycle of uncertainty, increase the propensity to consume (Cai Fang and Yang, 2009).

(6) Social stabilizer. This is also an important role of China's social security system. Many studies have pointed out that crime and social conflict and unemployment, income inequality and poverty are highly correlated (Fajnzylber, 1998; 2002). For the poor and the unemployed in a country without social security, this is a higher degree of correlation.

IV. Redistributive effects of social security system in China

This part mainly discusses the redistributive effect of the social security system in china. In this paper, using the household survey data collected by the Institute of Income Distribution, Beijing Normal University in 2013. First to estimate the total effect on the national income inequality of all the social security programs, and then the effects of different social security programs(pension, medical care, housing, subsistence allowances). The estimates are also conducted for urban and rural separately. The data come from the household survey collected by the Institute of Income Distribution of Beijing Normal University in 2013, which contain 10000 rural households and 8000 urban households .

The method used here is that first the market income inequality is estimated, and

then the redistribution effects of the different social security programs (pension, medical care, housing, subsistence allowances and other income transfers) are estimated using the following formula:

$$\text{Disposable income} = \text{market income} - \text{taxes} + \text{transfer income (public and private transfer income)}$$

Gini coefficient is used to measure the income gap, respectively, the calculation of market income distribution (usually referred to as the primary distribution), after deducting taxes, plus transfer income. The difference between the Gini of market income and the Gini of disposable income is seen as a redistribution effect.

Table 1. Redistributive effects of taxes and fees and transfer incomes in China, 2013

	Gini	Change in Gini	Change in Gini (%)
Market income	0.51740		
- Taxes and Fees	0.51767	0.00027	0.05
+ Public transfers	0.47203	-0.04564	-8.82
+ Private transfers	0.44135	-0.03069	-5.93
=Disposable income	0.44135		

Sources: The author's calculation using CHIPs Data 2013.

Table 1 indicates market income inequality in China measured by Gini coefficient is about 0.52 in 2013, while the Gini coefficient of disposable income inequality is 0.44. Thus, with the function of taxes, fees and transfer payments, the Gini coefficient of the national income inequality decreased by 8 percentage points. In other words, the Gini coefficient of the market income gap, after the redistribution policies, fell down

by 14.7%.

Table 2. Redistributive effects of taxes and social security contributions, 2013

	Gini	Change in Gini	Change in Gini (%)
Market income	0.51740		
- Taxes and Contributions	0.51767	0.00027	0.05
- Pension	0.51808	0.00068	0.13
- Medical insurance	0.51931	0.00123	0.24
- Unemployment insurance	0.51905	-0.00025	-0.05
- Other contribution	0.51914	0.00008	0.02
- Personal income tax	0.51767	-0.00147	-0.28

Sources: The author's calculation using CHIPs Data 2013.

Table 2 presents the results of redistributive effects of taxes and social security contributions attached to households. It is quite clear that personal income tax has a role in narrowing the income gap, but its role is very limited, making the Gini coefficient of the market income decreased only less than 1%. Several social security contributions, in addition to the unemployment insurance having a weak role in narrowing the income gap, have an effect of expanding income inequality. The reason is that low-wage workers pay as the same contribution as the higher wage/income earners. As shown in Table 2, social security contributions are expanding the income inequality, such as endowment insurance and medical insurance contributions respectively make the market income gap increased between 0.13% and 0.24%. This means that social insurance contributions are certainly regressive.

Among the public transfer incomes, all of them have the effect of narrowing income inequality, but the size of the effects is different from one to another. Pension of the urban retirees has a more obvious redistribution effect, which makes the market income gap narrowed by nearly 6%. Endowment insurance income received by urban residents and rural residents, and other pension income also help to narrow the income gap, but with a very small effect. The combined effect of the three types

of pension income is just to make the market income inequality measured by the Gini coefficient decreased less than 1.5%. Urban and rural social relief, as well as various grants, can be seen as a social welfare programs, also help to narrow the income inequality, but its effect is not significant. As shown in Table 3, the comprehensive effects of urban and rural subsistence allowances (dibao), social relief, and policy grants to make the Gini coefficient of the market income gap to fall less than 1%. Finally, a variety of agricultural subsidies (including grain subsidies) also helps to narrow the income gap, resulting in decline in the Gini coefficient of income inequality by 0.61%. Because this type of the subsidy is mainly obtained by the rural residents, it has a positive effect on narrowing the income gap between urban and rural areas.

Table 3. Redistributive effects of transfer incomes in China, 2013

	Gini	Change in Gini	Change in Gini (%)
Market income	0.51740		
+ Public transfers	0.47203	-0.04564	-8.82
+ Retired pension	0.48691	-0.03076	-5.95
+ Urban elderly subsidy	0.48366	-0.00325	-0.63
+ Rural elderly subsidy	0.48098	-0.00269	-0.52
+ Other pension	0.48040	-0.00058	-0.11
+ Dibao	0.47848	-0.00192	-0.37
+ Social relief	0.47741	-0.00107	-0.21
+ Other relief	0.47657	-0.00084	-0.16
+ Rural medical reimbursement	0.47568	-0.00090	-0.17
+ in-kind subsidies	0.47519	-0.00049	-0.09
+ Various agricultural subsidies	0.47203	-0.00315	-0.61

Sources: The author's calculation using CHIPs Data 2013.

What are the effects of various taxes and fees and social security programs on income distribution in urban and rural areas respectively? In this regard, we need to

examine the changes in the market income gap before and after the tax and social security projects. Table 3 is the change of the Gini coefficient of urban residents' income gap and the relationship between tax and social security. From table 3 can be seen in the estimation results, the Gini coefficient of urban residents income gap in the market in 2013 is 0.453, after tax and transfer income, the Gini coefficient of household disposable income gap decreased to 0.349. If you do not include the impact of private transfer income, after income redistribution policy adjustment, the Gini coefficient of income gap between urban residents decreased by 9.5 percentage points, or that the Gini coefficient of income inequality fell 21%. It should be said that the current tax and social security projects on the adjustment of urban residents' income distribution is still quite obvious. However, if we examine the effect of the fine items and the transfer income, we can find that the effect of taxes and fees is very small, but also to expand the income gap. This is mainly because the cost of endowment insurance and medical insurance fee has a certain income inequality, and personal income tax helps to narrow the income gap, but because of its limited role, not enough to offset the two premium increase income difference.

Table 4. Redistributive effects of taxes and fees and transfer incomes in urban China, 2013

	Gini	Change in Gini	Change in Gini (%)
Market income	0.45295		
- Taxes and Contributions	0.45502	0.00206	0.45
- Pension	0.45574	0.00278	0.61
- Medical insurance	0.45690	0.00116	0.26
- Unemployment insurance	0.45683	-0.00007	-0.01
- Other contribution	0.45698	0.00015	0.03
- Personal income tax	0.45502	-0.00197	-0.43
+ Public transfers	0.35745	-0.09757	-21.54
+ Retired pension	0.36813	-0.08689	-19.18
+ Urban elderly subsidy	0.36101	-0.00712	-1.57
+ Rural elderly subsidy	0.36044	-0.00057	-0.13
+ Other pension	0.35989	-0.00055	-0.12
+ Dibao	0.35827	-0.00162	-0.36
+ Social relief	0.35769	-0.00058	-0.13
+ Other relief	0.35733	-0.00036	-0.08

+ Rural medical reimbursement	0.35778	0.00045	0.10
+ in-kind subsidies	0.35762	-0.00017	-0.03
+ Varies agricultural subsidies	0.35745	-0.00017	-0.03
+ Private transfers	0.34868	-0.00877	-1.94
Disposable income	0.34868		

Sources: The author's calculation using CHIPs Data 2013.

In the transfer income, the greatest impact on the income distribution is from the pension. As shown in Table 3, resulting in a 19.2% drop from urban workers pension market Gini coefficient, the income gap between urban residents and other urban residents pension insurance revenue decreased by 1.6% the Gini coefficient of income gap between urban residents in the market. In addition, other transfer payments are very limited income redistribution effect of the project, making the Gini coefficient of income gap is less than 1%.

Table 4 shows the income redistribution effect of tax and social security in rural china. Generally, the effect of redistribution of social rural smaller towns, tax and public transfer income just makes the Gini coefficient of income gap of rural residents and urban market fell 4.9% to 21%. Similar to the situation of urban residents is the burden of rural residents not only did not reduce the income gap, but to expand the income gap. The redistribution of tax and fee makes the Gini coefficient of rural residents' income gap increased by 1.23% (see Table 4). Due to the development of the rural pension system is seriously lagging behind, the new agricultural insurance system after the establishment of the rural elderly pension subsidies obtained for farmers income proportion is still very low, so the income redistribution effect of farmers received pension income brings is very limited, but the peasant household market income gap narrowed by 1%. Of course, many rural transfer income than the towns, in addition to low premium income, rural residents also received other subsidies, such as subsidies for grain etc.. These transfers have a certain effect on narrowing the income gap between the rural areas. As shown in Table 4, a variety of agricultural subsidies to make the Gini coefficient of the rural income gap narrowed by about 1.34%.

We should also pay attention to the role of redistribution of private transfer income of rural residents. A large part of the rural private transfer income is the income from the family members to go out to obtain employment. In 2013 the private transfer income made the market income gap between the rural residents of the Gini coefficient decreased by 12.24%, which is equivalent to two times the public transfer income. Of course, the redistribution of private transfer income and the public transfer income has a strong alternative. That is to say, the increase in the transfer of public income will be squeezed out of private transfer income.

Table 5. Redistributive effects of taxes and fees and transfer incomes in rural China, 2013

	Gini	Change in Gini	Change in Gini (%)
Market income	0.46435		
- Taxes and Contributions	0.47005	0.00570	1.23
- Pension	0.46684	0.00250	0.54
- Medical insurance	0.47004	0.00320	0.69
- Unemployment insurance	0.46998	-0.00005	0.01
- Other contribution	0.47013	0.00015	-0.03
- Personal income tax	0.47005	-0.00009	-0.02
+ Public transfers	0.44161	-0.02843	-6.12
+ Retired pension	0.46452	-0.00552	-1.19
+ Urban elderly subsidy	0.46330	-0.00123	-0.26
+ Rural elderly subsidy	0.45838	-0.00492	-1.06
+ Other pension	0.45781	-0.00057	-0.12
+ Dibao	0.45474	-0.00306	-0.46
+ Social relief	0.45288	-0.00186	-0.40
+ Other relief	0.45127	-0.00160	-0.36
+ Rural medical reimbursement	0.44864	-0.00263	-0.57
+ in-kind subsidies	0.44781	-0.00083	-0.18
+ Varies agricultural subsidies	0.44161	-0.00620	-1.34
+ Private transfers	0.38479	-0.05683	-12.24
Disposable income	0.38479		

Sources: The author's calculation using CHIPs Data 2013.

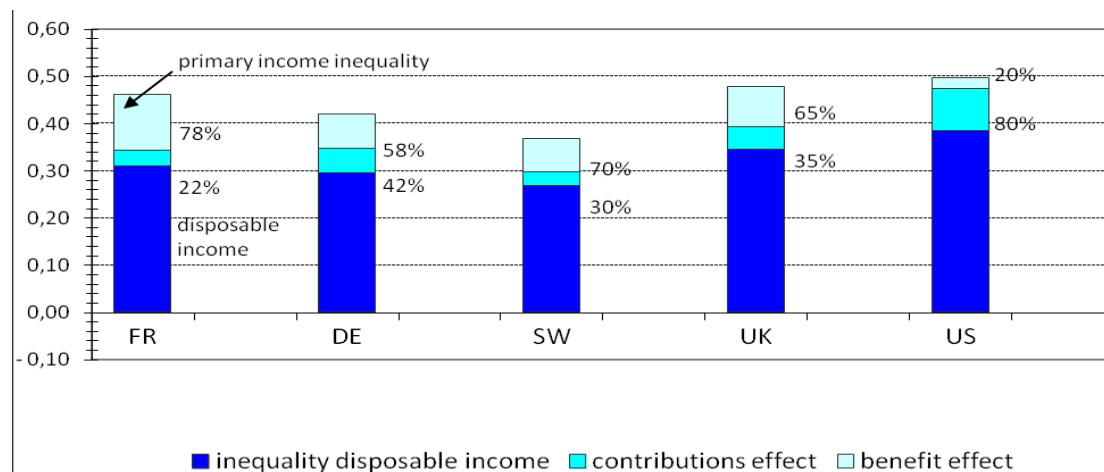
V. International comparison: China VS Europe

As a developing country, China's social security system has a short history. The system and mechanism are still in the process of continuous reform and improvement. Thus, compared with European countries, the function of redistribution of the Chinese social security remains weak.

European countries, especially the Nordic and Western Europe countries, social security and social welfare system has a hundred years of history, the formation of a

complete set of policy system. It has a positive effect on reducing inequality, alleviating poverty and stabilizing society. However, excessive social security and welfare system will also bring some negative effects, it will not be conducive to the efficiency of the increase and bring serious social burden. From the beginning of the last century in 80s, European countries are different reforms in social security and welfare system, the introduction of active labour market policies, in order to reduce the negative effects of excessive protection and benefits. However, the continuous reform of the European social security and welfare system still has a strong function of redistribution of income, for narrowing the income gap, to achieve equality of income distribution, and play a positive role.

Figure 9. Redistribution effects of social security benefits in the four countries of Europe and the United States

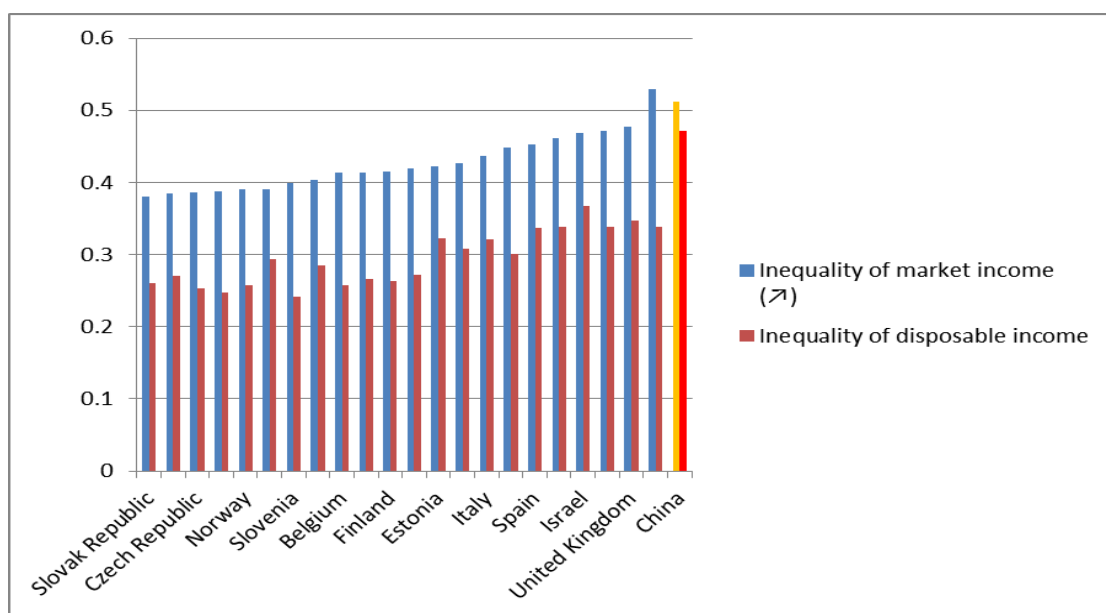


Sources: Data of European countries come from Jean- Yves Hocquet (2016) .

Social security and welfare play a role of income re-distribution through two ways, one is to pay (contribution) to the social security and welfare programs, another one is the public transfer income received by households. The payment is similar to the personal income tax, have a certain progressive, namely the higher income, pay more, which has played a role in narrowing the income gap. Public transfer income is reflected in a variety of social security and welfare, often low-income families will get more transfer income, thus narrowing the income gap. Figure 9 shows the impact of the European countries and the United States on the income distribution of social security. It is not difficult to see that the initial income distribution of these countries are quite large, except for Sweden. The other four countries have the initial distribution of income in terms of Gini coefficient higher than 0.4, that of the United States and the United Kingdom is close to 0.5. After social security payment and transfer payments, disposable income inequality has a significant decline, such as Denmark's income inequality decreased from 0.42 to 0.3,

the UK from 0.47 to 0.34. Figure 9 also shows the different effects of social security contributions and transfer payments. Compared to the United States, the effect of the payment of social security is smaller than that of the transfer income in European countries such as France, the redistribution of income transfer income has accounted for 78% of the total effect of social security, and the effect of payment accounted for only 22%. In contrast, the U.S. income redistribution effect of the transfer income accounted for only 20% of the total effect of social security, while the contribution of the effect is 80%. From this point of view, China is more similar to the European countries, the role of social security contributions to play a very limited role, and the role of public transfer payments is stronger.

Figure 10. Redistribution effects of social security and welfare: China VS Europe

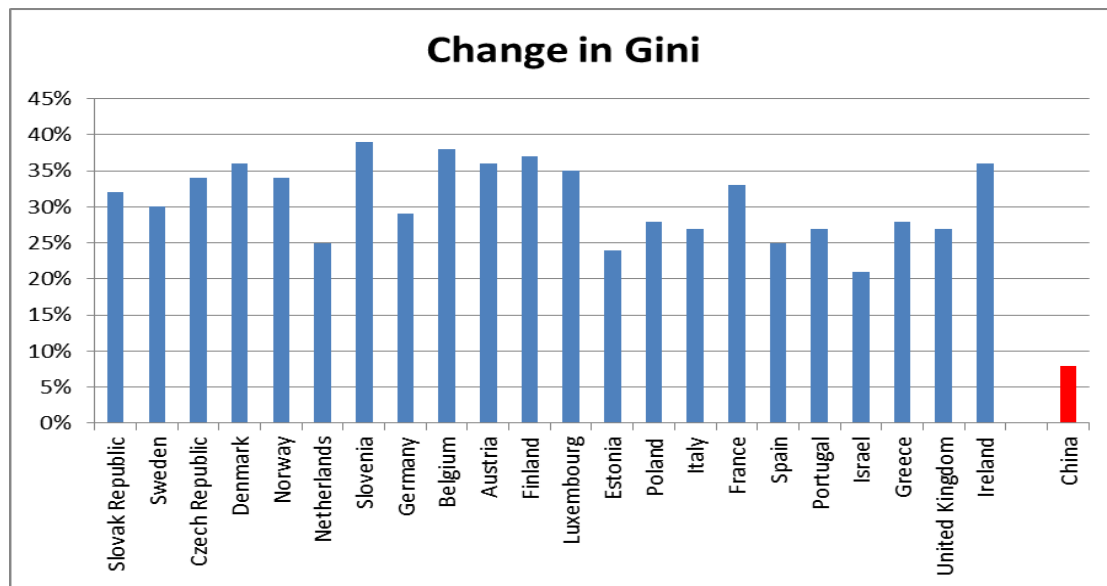


Sources: Data of European countries come from Jean- Yves Hocquet (2016) and the data for China come from the table 2 of this paper.

As mentioned before, China's social security and welfare system generated by the income redistribution effect is not large, just make the market income gap is a slight decline in the Gini coefficient. So, in contrast, to what extent income inequality can be reduced by social security and welfare in the European countries? Figure 10 shows the Gini coefficient of market income and disposable income gap of China and major European countries. It is not difficult to see that some European countries in the table shows the market income (initial distribution) of the Gini coefficient and disposable income (redistribution) have a greater difference between the Gini coefficient, which is significantly lower than the former. This means that the income redistributive system, including the social security and welfare system, plays a significant role in reducing the income gap in the European countries. In contrast, the difference between the Gini coefficient of China's market income and the Gini

coefficient of disposable income is not obvious in China, which shows that the effect of China's redistribution policy is very limited. Even more remarkable is the difference between Britain and China. Britain's market income gap is even higher than China, after redistribution, the UK's disposable income gap has a significant decline, with its disposable income inequality much lower than that of China (see Figure 10).

Figure 11. Falling Gini due to social security and welfare: China VS Europe (%)



Sources: Data of European countries come from Jean- Yves Hocquet (2016) and the data for China come from the table 2 of this paper.

Figure 11 shows the difference between China and European countries in terms of income redistribution. In major European countries, social security and welfare will lead to a decline in the income gap is much more than it? As shown in Figure 14, in 22 countries in Europe, after the adjustment of social security and welfare system, the income gap has decreased significantly. The smallest decline was in Israel, whose income gap between the Gini coefficient fell by 22%, the largest decline in Slovenia, the income gap of the Gini coefficient decreased by 38%. The average fall in these countries is around 30%. In contrast, China's social security and welfare system is very limited regulation, the income gap between the Gini coefficient just dropped by 8%.

Figure 11 also shows the Gini coefficient of China's market income and disposable income gap compared with major European countries. It is not difficult to see that some European countries in the table shows the market income (initial distribution) of the Gini coefficient and disposable income (redistribution) have a greater difference between the Gini coefficient, which is significantly lower than the former. This means that the income redistribution policies, including the social security and

welfare system, plays a significant role in reducing the income gap. In contrast, the difference between the Gini coefficient of China's market income and the Gini coefficient of disposable income is not so significant, which shows that the effect of China's redistribution policy is very limited. Even more remarkable is the difference between Britain and China. Britain's market income gap is even higher than China, after redistribution, the UK's disposable income gap has a significant decline, much lower than China.

In addition to the social security and welfare system in the transfer of income, the European countries of public services such as free medical care, education, affordable housing also played a role in regulating the distribution of income. Table 5 shows the effect of redistribution of public services in the European countries. On the basis of the disposable income of residents, if the market value of the public service, the Gini coefficient of income gap has a significant decline, which shows that the public service has narrowed the income gap. Some countries have a greater impact on the redistribution of public services, such as Sweden, and some countries are less like Germany. From the breakdown, play a main role is the public health, its impact on the distribution of income accounted for the overall effect of 40-70%. Due to the lack of research results in this area, we can not make international comparisons. However, from the existing experience, the income distribution effect of China's public service will not be too large, this is mainly because the equalization of public services has not been a good solution. Between urban and rural areas, between different groups of people in the enjoyment of public services, there are significant differences, to a large extent, undermine the effectiveness of public service income redistribution.

Table 6. Redistributive effects of public services in European Countries

	Gini coefficient of disposable income	Gini coefficient of (disposable income+public services)	Redistributive effect	<i>Effect of each public service as a percentage of the total effect</i>				
				<i>Health</i>	<i>Education</i>	<i>Child-care</i>	<i>Housing</i>	<i>others</i>
Germany	0,300	0,249	-16,9%	61,5%	30,2%	7,1%	1,8%	-0,6%
Austria	0,270	0,220	-18,5%	56,8%	34,1%	7,6%	1,6%	
Spain	0,340	0,276	-18,7%	60,4%	32,1%	5,3%	0,5%	1,6%
Finland	0,270	0,220	-18,7%	57,8%	23,0%	5,3%	0,5%	13,4%
Italy	0,320	0,259	-19,0%	48,4%	41,1%	7,9%	2,6%	
Netherlands	0,270	0,218	-19,2%	42,2%	33,3%	9,4%		15,1%

Slovakia	0,250	0,200	-19,9%	60,8%	33,7%	3,0%	2,5%	
Poland	0,320	0,256	-20,0%	43,0%	49,5%	5,5%	2,0%	
Estonia	0,310	0,246	-20,6%	56,3%	31,1%	6,8%	1,9%	3,9%
Greece	0,340	0,270	-20,6%	46,6%	28,6%	2,4%	22,3%	
Czech	0,260	0,206	-20,8%	63,9%	24,5%	7,7%	3,8%	
Luxembourg	0,270	0,213	-21,1%	50,7%	36,0%	10,9%	2,4%	8,3%
Belgium	0,260	0,204	-21,7%	65,9%	20,3%	6,9%	6,9%	
Denmark	0,250	0,196	-21,8%	45,9%	26,1%	5,0%		22,9%
France	0,280	0,217	-22,5%	57,8%	25,8%	8,0%	4,9%	3,6%
Portugal	0,370	0,286	-22,6%	60,2%	35,4%	4,0%	0,4%	
Hungary	0,260	0,201	-22,8%	46,1%	36,0%	12,3%		5,7%
Britain	0,330	0,254	-22,9%	54,6%	30,6%	3,1%	4,8%	7,0%
Ireland	0,320	0,246	-23,2%	53,9%	43,5%	0,4%	2,2%	
Sweden	0,240	0,183	-23,8%	52,1%	23,5%	6,3%	0,4%	17,6%

Sources: From Jean- Yves Hocquet (2016)。

VI. Conclusions and reform suggestions

The paper has the following major conclusions.

(1) In the past forty years of reform and opening up, China made great achievements in terms of economic growth, but social security and welfare system did not play an effective role in narrowing income inequality. China is facing a series of social and economic problems, such as the widening income gap and large scale of poverty population, economic slowdown brought the pressure of unemployment, massive rural migrant population, the lack of consumption demand and the increasingly serious aging.

(2) China has initially established a social security and welfare system covering the whole population, especially the pension and health care system covering the whole population. However, since the current social security system is fragmented, the system implements different systems for people with different employment status within a city, lack of cohesion and coordination between different groups.

(3) The results of this study show that the social security and welfare system, especially the endowment insurance system, has a positive impact on narrowing the

income gap, but the impact is not very significant. In particular, the personal income tax and social security contribution to the income distribution is negative, that is, the role of increasing income gap. A variety of social security and welfare programs with public transfer income has played a role in narrowing income gap, which is mainly derived from the role of pension insurance system.

(4) The EU countries have greatly reduced income inequality through social security and welfare systems. In addition, the EU's public service equalization level is high, but also to reduce the inequality of income distribution. In this regard, China has a lot to learn from the experiences of the EU countries .

The paper provides the following suggestions for further reform of social security system in China. In the future reform of social security and welfare system, China should pay more attention to its role in reducing income inequality.

First of all, the social security contribution needs to increase the progressivity of payment and the payment must be linked to their income level. In the pension system, the reform of civil servant pension insurance system should be accelerated, merged as soon as possible into the enterprise workers and public institutions staff pension insurance system.

Secondly, to reform the existing fragmentation of the social security system, to establish a unified national social security system as soon as possible. Reducing the differences in social security benefits for different groups of people. The current dibao program needs to improve targeting, also needs to improve its low premium level.

In addition, increase the number of welfare programs for poor people and low-income groups, such as subsidies for children from low-income families.

Finally, the simulation analysis of social security and welfare system should be encouraged, especially the effect of income redistribution is simulated and analyzed, which provides scientific basis for policy making.

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