

## Research on the Relationship between Social Security System and Economic Growth in China

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**Abstract** — In the past, economists generally consider Social Security System as a kind of social equity system, and rarely consider its role on the economic growth. However, Social Security can affect consumer expectations and human capital investment, so it will inevitably have some impact on the economic growth. Starting from Keynes Multiplier Theory, Combing with the human capital investment, this paper analyze the promotion mechanism of social security to economic growth. This paper concludes the government uses the fiscal revenue to increase the investment to the Pension Funds, the revenue will not decrease. It also can be increased slightly through properly handling. In a balanced economy with a reasonable social security system, increasing social security investment will promote economic development in both long-term and short-term. Moreover, increasing input in social security to promote economic growth will be more effective than increasing government public expenditure.

**Keywords** - Social Security System, Economic Growth, Consumer Expectations, Human Capital Investment.

### I. INTRODUCTION

The scholars who research on this matter have been divided into two groups: one is called Political Economy School[1-4], they research the origin, evolution and performance of Social Security on the basis of the social justice. They advocate PAYG System.[12] The other is called New-Classical School. They emphasize the efficiency of the social security system based on the relationship between Social Security System and savings so as to promote the economic growth. [14]They advocate Fund System. Both of them based their research on social justice and welfare. They seldom consider its impact on the economic growth. However the establishment of Social Security System reduced the constraints of budget and changed the economic incentive thus changed the economic behavior of individuals. This will profoundly affect the overall economy[8].This paper makes systematic review on some relevant theories about the expense of the social insurance fund and saving growth ratio in 2008-2013 in china,test the significance of dynamic difference for the expense of the social insurance fund, Disposable income, increase of savings and saving growth ratio.

Test' s result demonstrates that the relation between the expense of the social insurance fund and saving growth ratio is further confirmed by using analysis of correlation with software SPSS. Furthermore there are high negative correlation between the expense of the social insurance fund and saving growth ratio.(Specific data see table 1,2.)Namely the improvement of the expense of the social insurance fund, can cause residents savings rate reduced.

TABLE 1.2008-2013 the Expense of the Social Insurance Fund, Disposable Income, Increase of Savings and Saving Growth Ratio

year	The expense of the social insurance	Disposable income (100 million yuan)	increase of savings (100 million yuan)	saving growth ratio
2008	9925.1	128184.3736	45351.16	35.38%
2009	12302.6	144041.2324	42886.31	29.77%
2010	15018.9	167635.5524	42530.84	25.37%
2011	18652.9	198858.2009	40333.39	20.28%
2012	23331.3	231208.3897	55915.2	24.18%
2013	27916.3	262110.3192	48050.56	18.33%

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Source: [3].

Notes: saving growth ratio=(increase of savings/ Disposable income)\*100%

TABLE 2. CORRELATIONS

		The expense of the social insurance fund	saving growth ratio
The expense of the social insurance fund	Pearson Correlation	1.000	-.866
	Sig. (2-tailed)	.	.026
	N	6	6
saving growth ratio	Pearson Correlation	-.866	1.000
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	N	6	6

### II. "SOCIAL SECURITY-CONSUMPTION-DOMESTIC DEMAND" MODEL

Social security means that the state and the society distribute and redistribute the national income to members of society through legislation. It is a social security system which gives the basic living rights to members of society especially to those who have special difficulties, so the state should be the responsibility subject of social security. That also means the state is the main capital source of social security.

Keynes multiplier theory says that when the total investment increased  $\Delta I$ , the increase of national income  $\Delta Y$  will be several times or K times of investment  $\Delta I$ , the formula is:  $K = 1/ (1-b)$ , where b is the marginal propensity

to consume. We can see the capital put by the government as a public expenditure. We noticed that, according to Keynes multiplier theory of investment, income growth is driven by investment growth, consumption growth is driven by income growth, thus form a multiplier effect. Unlike public expenditure, the government investment to the social security system can't directly lead to the increase of income, but it can achieve the goal by changing the income expectation. So we can't consider the funds invested into social security by government as the increase of income, it should be expressed as follows:

$$\Delta Y (X, T) = [U(X, T) - Q (X, T) - R (X, T) \times U(X, T)] \times M (X, T)$$

Among them,  $\Delta Y (X, T)$  represents the overall expected income increase in a country or an area(X) within a certain period of time(T);  $U(X, T)$  stands for the maximum amount of social security funds available to individuals in a country or an area(X) within a certain period of time(T);  $Q(X, T)$  represents the insurance paid by individuals in a country or an area(X) within a certain period of time(T);  $R(X, T)$  stands for the individual payment ratio in a country or an area(X) within a certain period of time(T);  $M(X, T)$  represents the population of a country or an area(X) within a certain period of time(T); According to the above formula, we find that under equilibrium economic conditions (total demand is equal to the total supply), the capital invested into social security funds by the government can play a similar role as public expenditure. The capital invested to the social security system by the government will promote economic growth, but it will be affected by two elements, one is the premium that individuals pay, the other is certain proportion of payment assumed by individuals. If the overall increase of

expected income is positive, it is conducive to the growth of economy. Conversely, it will hinder the growth of economy. The investment to social security by the government can be recovered through tax, thus forming a virtuous circle.

### III. APPLICATION OF "SOCIAL SECURITY- CONSUMPTION-DOMESTIC DEMAND" MODEL

Let's take the Pension Funds as an example. Suppose the average life expectancy in China is 75 years old, the payment period is 30 years, the retirement age is 60 years old, and the proportion of payment is 8%. (The following data comes from the website of Chinese Bureau of Statistics 2014) In 2012 the expenditure of the Pension Funds is 1556.18 billion Yuan, the number of retirement is 69.109 million, and the annual pension is 22517.76 Yuan per capita, the average wages in town is 28898.00 Yuan per year. So the overall expected increase of income should be as follows:

$$\begin{aligned} \Delta Y &= [22517.7618 \times (75-60) - (28898 \times 8\%) \times 30 - (28898 - 22517.7618) \times 15] \times 69109000 \\ &= -138247.7461 \times 69109000 = -95541.63485 \text{ (100 million yuan)}. \end{aligned}$$

From the above calculation we can see that, in conformity with the current enterprise pension system, each employee has to save 110093.03 Yuan so as to keep the same income level after retirement, that is to say they have to reduce the same amount of consumption. The said money is to save within 30 years, which means that each person should reduce the consumption by 4608.25 Yuan per year. In a word, according to the pension system in China, the reduction of domestic demand is about 0.96 billion Yuan in 2012.

TABLE 3.2008-2012 EFFECTS OF SOCIAL SECURITY WEALTH ON THE CONSUMPTION OF CHINESE

year	Expenses of pension fund(100 million yuan)	Retirees(10,000persons)	Annual pension (person)
2012	15561.8	6910.9	22517.7618
2011	12764.9	6314	20216.81977
2010	10554.9	5811.6	18161.77989
2009	8894.4	5348	16631.26402
2008	7389.6	4868	15179.9507

year	Average wage (yuan)	Increase or decrease of 30 years	Increase or decrease of total (100 million yuan)	Increase or decrease of annual (yuan)
2012	46769	-138247.74	-95541.63485	-4608.258203
2011	41799	-120798	-76271.86164	-4026.600234
2010	36539	-90925.21	-52842.09118	-3030.840112
2009	32244	-62107.68	-33215.18688	-2070.255976
2008	28898	-47426.68	-23087.30736	-1580.889302

Source: [3].

Suppose the government increases the pension substitution rate to 80%, and the increase is afforded by public finances, the financial input increase for 15 years should be  $[(46769 \times -22517.7618) \times 15] \times 69109000 \approx 15.4$  trillion Yuan. The average increase of annual of fiscal expenditure should be 1 trillion Yuan. Chinese fiscal revenue in 2012 is 11.7253 trillion Yuan, putting 1 trillion Yuan into the Pension Funds is applicable.

Suppose the marginal propensity to consume in China is 0.8, according to Keynes Multiplier Theory,  $K = 1 / (1-b)$ ,

then 1 trillion Yuan will result in domestic demand of 5 trillion Yuan ( $1 / (1 - 0.8) = 5$ ). If the expansion of domestic demand are all produced by domestic enterprises, the government's tax revenue will increase 1.25 trillion Yuan. (According to "the People's Republic of China Income Tax Law (Draft)", the enterprise unified tax rate is 25%.  $5 \times 25\% = 1.25$ ).

TABLE 4.2008-2012 EFFECTS OF SOCIAL SECURITY WEALTH ON THE TAX REVENUE OF CHINESE

year	Annual pension (person)	Average wage (yuan)	financial subsidy (100 million yuan)
2012	22517.7618	46769	10295.47057
2011	20216.81977	41799	8348.61088
2010	18161.77989	36539	6433.104192
2009	16631.26402	32244	4900.87296
2008	15179.9507	28898	3864.43712

year	Government revenue (100 million yuan)	Tax revenue increase (100 million yuan)
2012	117253.52	12869.33821
2011	103874.43	41743.0544
2010	83101.51	32165.52096
2009	68518.30	24504.3648
2008	61330.35	19322.1856

Source: [3].

Although this model has many assumptions, we can see if the government uses the fiscal revenue to increase the investment to the Pension Funds, the revenue will not decrease. It also can be increased slightly through properly handling.

IV. PRACTICAL SIGNIFICANCE OF "SOCIAL SECURITY- CONSUMPTION-DOMESTIC DEMAND" MODEL

A. *It Can Reduce the Government's Concerns, Thus Increase the Investment in Social Security*

China's reform of the social security system began in the 80s, the purpose of the reform was to reduce the financial burden and provide conditions for the reform of state-owned enterprises. Through the above model, we can find that to increase social security investment will not cause too much burden on public finance. If the social security system is properly designed, in other words, if the marginal propensity to consume is large enough, it can also add to the fiscal revenue.

B. *4.2 It Can Clarify the Promotion Mechanism of Social Security System to the Economic Growth, so as to Facilitate the Establishment of Appropriate Social Security System*

This model suggests that, in order to maintain proper fiscal expenditure, social security system should be formulated to expand the marginal propensity to consume. That is to meet the most urgent needs of the insured. In this way, government investment can be converted into consumption with fastest speed, thereby stimulating economic growth. This is also consistent with the welfare economics' point of view, if the distribution of income tilt to the poor, the welfare of the whole society can improve. It will be conducive to achieve the Pareto optimality, and then help the social stability.

C. *It Can Help Reduce Saving and Expand Domestic Demand*

In the social security system, the more individuals bear, the more they save in order to cope with the risks. This will inevitably reduce more consumption, and these funds may not be sufficient if unexpected events occur. The establishment of a perfect social security system can effectively prevent the risk, thereby releasing part of their savings, so that domestic demand could be expanded.

V. THE ADVANTAGES OF INCREASING INPUT IN SOCIAL SECURITY RELATIVE TO THE INCREASING OF PUBLIC EXPENDITURE

A. *It Can Minimize the Impact on the Economy Made by Government Behavior.*

Austrian school advocates that state intervention in economy will affect the self-stable function of the market economy. The subprime crisis in the America shows that the market economy itself is not perfect, it needs state intervention. The degree and the range of state intervention is still an issue worthy of discussion. The usage of government public expenditure is often inefficient in China, so government should increase input in social security to promote economic growth and at the same time, minimize its impact on the market.

B. *It Can Promote Social Stability and Equity*

Welfare Economics consider that one unit of incremental monetary to the rich meet with far less satisfaction than that to the poor. The establishment of a reasonable social security system will transfer part of the national income from the rich to the poor, thus increasing the social well-being index, so as to maintain social stability. Reasonable social security system can also create a fair competition environment, and help to fair social distribution.

C. *It Can Increase the Potential of Economic Development*

Modern economic theory argues that in the high-tech society, returns on human capital are far greater than those on money capital and material capital. The establishment of a reasonable social security system can increase the input of human capital, and can improve people's physical strength, intelligence and skills. In China, it is conducive to economic restructuring, development of high-tech industry and green industry. It will also provide a guarantee for the sustainable growth of economy.

To sum up, in a balanced economy with a reasonable social security system, increasing social security investment will promote economic development in both long-term and short-term. Moreover, increasing input in social security to promote economic growth will be more effective than increasing government public expenditure.

## VI. PREREQUISITE FOR THE REALIZATION OF MAKING THE SOCIAL SECURITY SYSTEM PROMOTE ECONOMIC DEVELOPMENT

Figure 1. The framework of social security in china

The new growth theory argues that economic growth comes from technological progress, knowledge spillover, human capital accumulation and other factors. One of the mechanisms of social security system's promoting economic growth is the effect on the level of investment in human capital. It will promote the accumulation of human capital.

### A. Pension Substitution Rate Should Not Be too High

Higher Pension Substitution rate has three main defects. Firstly, it will add to an additional burden on enterprises, and weaken their competitiveness. Secondly, it will encourage employees to retire ahead of schedule. Lastly, it will increase the burden on pension funds, especially under aging population conditions, public finance is probably unable to afford. Conversely, relative lower substitution rate can make the retired try to find other works, so that the knowledge capital condensed in the retired may release.

### B. While Establishing Unemployment Insurance, both Allowances and Promotion of Employment Should Be Considered.

On the one hand, the unemployment insurance system should be able to encourage the unemployed to get a job as soon as possible. On the other hand, it should give the unemployed effective training they need, thus avoid so called "ability unemployment" which refers to unemployment caused by lacking of skills. Chinese unemployment insurance should pay more attention to improve the skills and the overall quality of the labor force through training, so as to meet the need of Chinese industrial structure adjustment.

### C. The Compensation Rate of Medical Insurance Should Be Increased.

Increasing the Compensation rate of medical insurance can help people recover from illness and ensure the labor reproduction. Collection of medical insurance payment and service charges could adjust income difference. Because the medical insurance pays for the medical expenses which have

already occurred, so marginal consumption rate associated with medical insurance is close to 1 theoretically, it greatly helps to increase the fiscal revenue. The increase of Compensation rate will improve medical technology and medical treatment, so as to increase competitiveness.

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