The Reason for China's High Savings

—Based on The Interpretation of Demographic Dividend

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Abstract: This article regards the "demographic dividend" caused by demographic transition as an additional source of savings growth. The article first introduces the international standard population division and defines the existence of "demographic dividend" in China. Then, with the help of the Leff model, the relationship between the total dependency ratio, the child dependency ratio, the old-age dependency ratio, the economic growth rate and the huge savings of China is revealed. The empirical research shows that the total dependency ratio, the child dependency ratio, the old-age dependency ratio and the economic growth rate Both have a significant impact on savings, and the impact of total dependency ratio, child dependency ratio, and old-age dependency ratio on savings is more significant than economic growth. Finally, it is proposed that increasing the accumulation of human capital is an effective way to turn China's huge savings into investment.

1. Introduction

Since the reform and opening up, China's savings rate has been increasing, and the high savings rate has provided sufficient capital for China's economic development. It has made great contributions to the rapid development of China's economy after the reform and opening up, but since the 1990s, China's savings rate has increased. The average has reached more than 40%, higher than the world average, and higher than many developed countries and emerging economies. At present, the positive impact of excessive savings rate on economic development is not significant. The high savings rate means that China's economic development process is insufficient, economic development lacks stamina, and savings are not completely converted into investment, and funds are not fully utilized. This question analyzes the reasons for China's high savings from the perspective of demographic dividends, and then proposes how to convert huge savings into investment.

2. Literature review

Regarding the reasons for China's high savings, scholars at home and abroad have done a lot of research and come to the conclusion:

(1) An explanation based on economic growth. Liu Jinquan and Guo Fengfeng (2002) use the causality test method proposed by Engle and Granger. The results show that there is no significant positive impact of the savings rate on economic growth in China at this stage, but there are real GDP levels and savings. Significant reverse impact, so higher income growth is the main reason for the increase in savings. Chen Liping (2005) discussed the relationship between growth and savings in a discrete-time growth model that introduces consumer comparisons. After introducing a rational consumption comparison, it is found that high growth also leads to high savings, because the comparison effect is simultaneously improved. The marginal utility of current consumption and future consumption, when the public increases current consumption, will lead to lower consumption in the future than other individuals, resulting in a greater loss of the individual's future utility, which theoretically supports the view that growth leads to savings.

(2) An explanation based on income distribution. Cook (1995)'s research shows that there is a

clear positive correlation between the savings rate of residents in developing countries and the income distribution gap. Forbes (1997) shows that income distribution gaps have a positive impact on savings, both in developing and developed countries. Jia Dekui and Shi Hongjun (2003) believe that the current high savings behavior of Chinese residents is caused by financial market defects and income inequality, and the widening income distribution gap is the driving force for the continuous increase of savings. In order to control the scale of moderate savings and improve the efficiency of the use of savings resources, we must start from narrowing the income distribution gap of residents and promoting financial market innovation. Li Yang and Yin Jianfeng (2007) based on the 1992-2003 China cash flow statement, compared the savings rates of three sectors: residents, enterprises and government from two aspects: income distribution and departmental savings propensity. It is concluded that China's high savings rate is jointly promoted by residents, enterprises and government departments. The further increase in the savings rate since 2000 is mainly related to the increase in the savings rate of government departments. Liu Yuhui (2007) believes that the essence of China's high savings and high investment contradictions is a problem of income distribution. The fundamental reason for the current decline in consumption is the rising government revenue and the proportion of state-owned enterprises' income in the national income distribution system. The proportion of household income is declining, while the government and state-owned enterprises are the main savings sectors. Jia Dekui explains the reason for China's high savings rate from the perspective of the gap in income distribution. Li Yang and Liu Yuhui are the reasons for the high savings rate from the distribution of national income among government, enterprises and individuals. Although the angles are different, But it is concluded that income distribution has a great impact on savings.

(3) Interpretation based on changes in demographic structure. Leff[(1969, 1971) used the cross-sectional data of 74 countries in 1964 to find that the per capita income level, economic growth rate, child rearing ratio, old-age dependency ratio and total dependency ratio all had significant effects on the national savings rate. Ram (1982) used the 1977 data from 128 national cross-section data to draw similar conclusions. Kelly (1973) believes that demographic changes change the proportion of consumption and savings in national income. From the perspective of individual life cycle, after entering the working age, personal savings change is a trend of rising first and then falling, if labor in the population The ratio of the age population is large, so the sum of personal savings of this part of the population will help to increase the savings rate. Yuan Zhigang and Song Wei (2000) found that an old-age population of the population can generally encourage residents to increase their savings by constructing an iterative model that can grasp the basic characteristics of China's pension insurance system. In the family planning policy economy, the population structure will evolve into the mushroom-like, that is, the proportion of the elderly population has risen and become a major component of the total population. They believe that China's high savings are likely to be individual rational choices based on the age structure of the population. Wang Dewen, Cai Wei, and Zhang Xuehui (2004) used the Leff model to use the time-series data of the provinces to introduce the year dummy variables and regional dummy variables into the model. Since the reform and opening up, China's population dependency ratio has had a significant impact on savings.

(4) Interpretation of the motives of preventive savings based on institutional changes leading to uncertainties. Song Wei (1999) believes that an important reason for the rapid growth of savings is that Chinese residents' saving behavior becomes more cautious in the case of uncertain future income. He uses urban residents' income standards as a measure of uncertainty. Indicators, the regression of the data from 1985 to 1997, the results show that the uncertainty of future income is the main reason for the increase in Chinese residents' savings. Xie Ping (2000) believes that from the process of China's 20-year economic system transition, institutional variables are important factors affecting individual expectations. The uncertainty of future income and expenditure in the process of institutional change makes people focus on the whole life. The cycle determines its income arrangements and forms reserve savings to cope with institutional changes. Shi Jianhuai and Zhu Haiting (2004) used the statistical data of 35 large and medium-sized cities in China from 1999

to 2003 for quantitative analysis, comprehensively examined the precautionary savings and preventive motivation of Chinese urban residents, and found that 35 large and medium-sized urban residents The relative caution coefficient shows that there is indeed preventive motivation in urban residents' saving behavior.

3. Demographic dividend and high savings

Since the founding of New China, China has begun the process of modern population transformation. Table 2 shows China's population dependency ratio from 1950 to 2008. It can be seen that 1990 is the dividing line between China's population debt and demographic dividend; 1950-1990 China was in the period of population debt, during which China's population debt experienced a There were fewer and more changes, and the population dependency ratio reached 80.5% of the peak in 1965. Since then, the population dependency ratio has continued to decline. Since the 1970s, due to the full implementation of the family planning policy, population support By a sharp decline from the beginning, by 1990, the population dependency ratio fell to 49.9%, and China began to enter the demographic dividend period until 2008 (the population dependency ratio was 37.36%).

From the above analysis, we can see that "the demographic dividend exists in China. Let's analyze the relationship between "demographic dividend" and savings. First, let's build a simple model:

$$InS / Y = \beta_0 + \beta_1 D + \varepsilon$$

In the equation, S/Y represents the savings rate, which is the proportion of national income used for savings, and D represents the total population dependency ratio, which represents the error term. Regression of this equation yields the following results:

Table 1 Regression results of the impact of total dependency ratio on savings rate

variable	coefficient
C	-2.362800（-16.34937）***
D	-1.686825（-9.46825）***
R2	0.856662
Number of samples	17

As can be seen from the above table, the total parenting coefficient is -1.686825, the significant level is 1%, and the significant level of the constant part is also 1%, indicating that the constant term includes variables that have a significant impact on savings.

Below, we introduce some other variables, using the Leff (1969) model to test the impact of China's population dependency ratio on savings since the reform and opening up. The regression equations used for analysis are as follows:

$$InS / Y = \alpha_0 + \alpha_1 InD_1 + \alpha_2 InD_2 + \alpha_3 InY / N + \alpha_4 Ing + \varepsilon$$

In the formula, S/Y is the same as above, representing the savings rate, D1 represents the child rearing ratio, D2 represents the old-age dependency ratio, Y/N represents the per capita national income, and g represents the economic growth rate, ε representing the error term. The data comes from the National Bureau of Statistics of China, the China Economic and Trade Network data and the New China 50 Years Statistical Data Collection. Among them, the population dependency ratio before 1995 is not available, so it comes from Chen Youhua: Demographic Dividend and Population Liability: Quantity Data compilation in the article "Definition, Empirical Observation and Theoretical Thinking". The specific variable processing method is: the saving rate is equal to the total capital formation as a percentage of GDP; the per capita national income is equal to the ratio of the annual national income to the current year's population; the economic growth rate is the

economic growth of the ring; the child rearing ratio is the population aged 0-14. The ratio of the number of people aged 15-64 (%); the ratio of the old-age dependency ratio to the number of people aged 65 and over and the number of 15-64 years old (%), the total dependency ratio is equal to the sum of the child dependency ratio and the old-age dependency ratio, The regression results of the equation are shown in Table 2;

Table 2 Regression results of the impact of demographic dividend on savings rate (LS method)

variable	coefficient
C	-2.962842(-3.253180)***
InD1	-1.022057(-4.01166)***
InD2	-0.564443(-1.740328)**
In(Y/N)	0.097959(1.727437)*
Ing	0.348540(4.540880)**
R2	0.955613

Note: The values in parentheses are t values, and *, **, and *** represent significant levels of 10%, 5%, and 1%, respectively.

The regression results in Table 2 are obtained by the least squares method. The regression coefficient of the child rearing ratio, the old-age dependency ratio, and the economic growth rate are all 1% or 5% except that the regression coefficient of the per capita income level is not significant. The significant level is consistent with theoretical expectations. Among them, the coefficient of child rearing ratio is -1.022057, the significant level is 1%; the coefficient of old-age dependency ratio is -0.564443, and the significant level is 5%, indicating that the impact of both savings is significant and negative, but the child rearing ratio The impact on savings is significantly higher than that of old-age care; the coefficient of economic growth is 0.348540, and the significant level is 5%, indicating that economic growth can also significantly affect savings, and the higher the economic growth rate, the more savings. It can also be seen from the regression results that the regression coefficients of the variables in Table 2 are their corresponding savings rate elasticity. In absolute terms, the elasticity coefficient of the child dependency ratio and the old-age dependency ratio is greater than the elasticity coefficient of per capita income and economic growth rate, indicating that the age structure change of the population has an important impact on the savings rate.

4. Demographic dividend affects the way of saving

Since the founding of New China, China's population growth has experienced two waves of baby boomers. One wave was around 1963, the natural population growth rate remained at 27%, and the other wave was in the 1980s after the reform and opening up, the natural population growth rate remained at 20%. The high population growth rate guarantees the future labor supply.

4.1 From the perspective of labor supply

The population born during the baby boom of the 1960s is currently around 35 to 40 years old. The population of this age group is part of the labor force after the reform and opening up. As can be seen from Figure 3, the proportion of the working-age population (15-64 years old) in China has been rising since the 1960s. By 2007, the proportion of the working-age population has reached 72.77%.

The labor participation rate of the working-age population in China increases with the age structure of the population. In 1978, China's total population participation rate was only 42%. By 1990, the total population participation rate had reached 55%, and in 2008 it was 58.34%. We know that economic growth is driven by many factors, such as natural resources, labor, and technological

progress. Among them, labor is one of the important factors. The Cobb-Douglas production function: $Y = AK^{\alpha}L^{\beta}$ （$\alpha + \beta = 1$）, which represents the contribution of capital and labor to economic growth. $\alpha = 0.25$, $\beta = 0.75$, which shows that the contribution of labor to economic growth is very large, reaching 75%. Since China's reform and opening up, the productive demographic characteristics have promoted the rapid development of China's economy for 30 years. The GDP and per capita GDP have been increasing, and savings is an important component of GDP. Positively related to the growth of GDP, the increase in the working-age population is positively related to the growth of savings.

4.2 From the perspective of population dependency ratio

In the entire population structure, the labor force has a large proportion. Since 1990, the proportion of the working population has remained at 70% for nearly 20 years, and the children and the elderly have only accounted for about 30%. Since the founding of the People's Republic of China, China's population burden factor has been declining, from 61.6% in 1950 to 37.36% in 2008 (Table 1). According to the world standard population, when the total population burden factor is 50%, it enters the "demographic dividend" period. Since 1990, China has entered the demographic dividend period (49.9%). By 2000, the total population burden the coefficient was 42.66%, and it entered the period of "population profiteering". Since then, the population burden factor has continued to decline and continues until 2008 and will continue. This demographic profile reduces the burden of support for the working population. On the one hand, for the working population, the number of people who need to take care of the family is small. Both husband and wife can work in their own jobs without worrying about the need to take care of the elderly and children to give up their jobs. The wages they receive will also increase the family income, thereby increasing Family savings; on the other hand, the elderly and children do not engage in any work, and there is no source of income. At home, they are pure consumers. The more people there are, the more consumers spend. On the contrary, if they account for Smaller, less expensive, and the remaining part of the expenditure is also the source of savings. It can be seen that the population dependency ratio is inversely related to the savings rate.

Demographic changes have changed the proportion of consumption and savings in national income. Demographic transition is a long-term process that encompasses both changes in the life cycle of individuals and the replacement of intergenerational relationships. From the perspective of personal life cycle, after entering the working age, personal savings change is a trend of rising first and then falling. If the ratio of the working-age population in the total population is significant, then the sum of personal savings of this part of the population will help to increase the savings rate.

4.3 From the perspective of public investment

If the population ages faster, the use of non-productive consumption expenditures such as pensions, care for the elderly, and medical care in national income will increase substantially, reducing the proportion of public investment for productive investment, and reducing private savings and public investment. As a result, the growth rate of total output and per capita national income has declined. Peterson (1999) summarized the negative effects of population aging by six points: First, medical costs have risen at an alarming rate; because older people need more health care, this will bring huge medical expenses to the younger generation or cause huge The government's fiscal deficit; Second, the ever-expanding pension expenses also lead to high pension costs and fiscal deficits; Third, the rising old-age dependency ratio leads to the continuous deterioration of the economy; Fourth, the severe shortage of labor brings the total economic output 5. The decline in savings rate (less young people save, more old people consume their savings), leading to a reduction in investment; six, less enthusiasm for work, or greater resistance to reform, leading to lack of vitality in the economy. Feldstein (1995) used cross-country time series data analysis to find that the increase in social security spending reduced private savings by nearly 60%. In the past 30 years, the proportion of the elderly population in China's population structure is small, and the expenditure on the above aspects is also relatively small, so the proportion of personal

income and total national income used for savings is relatively large.

5. Policy suggestion

The demographic shift has enabled China to allow China to enjoy demographic dividends since the mid-1980s. This paper uses Eviews5 software to carry out multiple regression analysis on the variables such as savings and population dependency ratio. Since the reform and opening up, the decline of the population dependency ratio has promoted the growth of China's savings, and also analyzed the ways in which the demographic dividend promotes savings growth. Although high savings can provide sufficient funds for economic development and promote economic development, in recent years, the impact of China's huge savings on economic growth is weakening; moreover, demographic dividends are not permanent, with the completion of demographic transition. The demographic dividend will also disappear. Below, we will make recommendations on how to fully utilize and develop China's current demographic dividend advantage and digest China's huge savings.

First, develop the existing demographic dividend by maximizing employment. The demographic dividend is the result of demographic transition. For a country, the demographic dividend is an economic advantage. During the demographic dividend period, the social burden is low, the social productivity is high, and the economic growth is fast. Countries around the world have experienced this period of demographic transition, and the current development of the country has also developed during the demographic dividend that occurred during the demographic transition period. Due to the implementation of special national conditions and family planning policies, China's demographic transition takes less time than the normal population changes, which means that China has entered the demographic dividend period in advance, and the demographic dividend lasts longer than normal. Short. China must make great use of its advantages during the demographic dividend period and strive to expand employment and promote economic growth. Since the late 1990s, the rigorous employment situation has led to the layoffs of tens of millions of urban workers, some of whom are either unemployed or have withdrawn from the labor market. Since 1995, the urban population and the population required for economic activities have not kept up with the growth of the working-age population. In 2008, the "subprime mortgage crisis" that originated in the United States has evolved into a global financial crisis that has seriously affected the development of China's economy, and coastal factories have closed down. Ten thousand migrant workers are unemployed, and the severe economic situation has made the newly graduated college students become unemployed. This situation means that China's surviving demographic dividends have not been fully utilized, so at this stage, China needs to promote employment through a series of policy adjustments and institutional development.

Second, to effectively convert China's high savings into investment, in particular, it is necessary to increase the intensity of human capital investment. If the demographic dividend is more reflected in the labor force advantage and will eventually disappear, the increase in human capital stocks means a more rewarding and more sustainable source of economic growth. The accumulation and improvement of human capital includes the improvement of the quality of education for all and the quality of health. Education is the most important form of human capital training. An effective education system is also a channel for the effective connection between human capital accumulation and the labor market. By reconfiguring educational resources, expanding the field of education and education time, and building a lifelong learning society, limited resources can be used more effectively. From a health perspective, looking for the key areas that are most conducive to improving the health of the whole population, adolescent health quality, women's reproductive health and labor health and work injury insurance can also improve the efficiency of human capital formation.

Finally, absorb the experience and lessons of other countries and choose a sustainable old-age security model that suits China's national conditions. Respond to the challenges of aging and establish a sustainable pension system. On the one hand, the system of accumulating from the pay-as-you-grow pension insurance system to the complete individual accumulation system should

be realized as soon as possible. On the other hand, the social security system covering the rural areas should be established to improve the current protection fund's contribution level and social support capacity.

Acknowledgements

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