

Xueyuan Tian

# The Hope of the Country with a Large Population

Theories and Practices of China's  
Population Transformation



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# Preface

China has the largest population in the world. However, according to the United Nations, India and China are estimated to reach a population of approximately 1.38 billion simultaneously by 2030, with India taking a slight lead. China will find itself content to surrender the position as the largest population nation to others. Where does this contentment come from? For China, this situation is symbolic for the solution to the excessive population and a milestone for the “three-stage” population development strategy, as well as the people’s hope. In order to realize this hope, it firstly depends on the transformation from the previous high birth rate, high death rate, and low growth rate of population; to the high birth rate, low death rate, and high growth rate; and finally to the low birth rate, low death rate, and low growth rate. It also relies on the “post-demographic transition” to a low fertility level since the 1990s, and secondly, it is closely related to the population change in the future. Therefore, the in-depth studies on population and the development of population, resources, environment, economy, and society should be conducted based on the fresh experiences and theories from the international community, in order to move forward with the times to promote the solution to the population problem and realize the dream of the rejuvenation of the Chinese nation. As a result, the population change is linked to this great rejuvenation, as the great rejuvenation requires the population change, and, in turn, the population change facilitates the population change, which is the main line of the whole book. Each of the seven chapters jointly constitutes the main focus of the book. This is the reason for the book to be entitled as *The Hope of the Country with a Large Population: Theories and Practices of the Transformation of the Population in China*.

The first chapter involves the corrections on the population theory and China’s population problem and incorporates four chapters, including *Reverse the Verdicts on the New Population Theory Proposed by Ma Yinchu*. It clarifies the nature of the excessive population in China after having reversed the verdicts on the population theory at the early stage of reform and opening up. It also explains the necessity and possibility of giving priority to the control of population growth in the comprehensive solution to the Chinese population problem and adopts family planning as the basic state policy.

The second chapter discusses the population economy and labor employment through five chapters, including *Comprehensive Balance Between the Population and the National Economy*. Combining China's practices, it elaborates the relation between the economy, the working age population, and employment; it demonstrates the "golden age" of the age structure based on the lower birth rate, higher proportion of the working age population, and lower dependency ratio and suggests facilitating the social and economic development by the "demographic profit" and "demographic dividend."

The third chapter regarding the population aging and old age security consists of three chapters, including the *Present Situation of the Elderly Population in China*. Based on the analysis of the firsthand data from the sampled investigation on the elderly population, it reveals the whole situation of the elderly population, such as scale, quality, structure, marriage, family, economy, and social activities, and summarizes the characteristics of aging in China, including the rapid speed, high level, accumulated growth, and unbalanced distribution between rural and urban areas and in different regions. It draws lessons from international experiences and proposes the establishment of the old age security system integrated with social support, family support, and self-support.

The fourth chapter discusses the population flow and population urbanization and incorporates three chapters, such as the *Warning Against the "Trap in Latin America" in Population Urbanization*. It analyzes the special S-curve of the population urbanization in China, the shock brought about by more than 200 million peasants moving to the cities, the current problems in urbanization, the challenges in the transformation and upgrading, and the policy selection to avoid the "trap in Latin America" in urbanization.

The fifth chapter on the population and sustainable development consists of three chapters, including the *Theory on the People-Oriented Sustainable Development and Its Theoretical System*. It explains the theoretical framework of sustainable development; the role of humans in sustainable development; the strategy of sustainable development of population, economy, society, resources, and environment; the denotation and connotation of people-oriented sustainable development; and the macroscopic thinking of the change of the economic development method and social transformation for the population and sustainable development.

The sixth chapter on the strategy of population development and population policies incorporates four chapters, including the *Three-Step Development: Rational Choice for China's Strategy of Population Development and Review and Prospect of the Population Policies of New China*. The "three-step development" of the population development in China refers to the following: the first step, lowering the high fertility rate under the replacement level; the second step, stabilizing the low fertility level, continuing to lower the birth rate until zero growth, and gradually transferring the emphasis from the population quantity control to the quality improvement and structure adjustment; and the third step, choosing the optimum population goal in terms of quantity, quality, and structure based on the population, social, and economic development at that time, in order to realize the sustainable development between population and resources, environment, economy, and society. Personal

experiences are also applied to explain the population policies of population development strategies in different periods, to point out the key role of adjustment in the current overall situation of population and fertility policies, and to underline the necessity to make timely adjustments on the current childbirth policy.

The seventh chapter focuses on the population research and subject building and references four chapters, including the *Past, Present, and Future of the Development of Population Science in China*. It places emphasis on explaining the present situation and future trend of population science in China and foreign countries; it discusses the progresses and disadvantages of the development of population science in China; it proposes and demonstrates the theory on social additional costs and benefits of children based on the western cost–benefit theory of children through theoretical demonstration, calculation, and examples; and finally, it incorporates the reward for the only child and the penalty on the children born in excess of plan in the theory of additional social costs and benefits of children for interpretation.

The main content and structure of the book have been summarized and introduced as above in order to guide the reader and unveil part of the population transformation and the study on population science in China. The original Chinese version collected 60 articles, but, considering the international academia's interest and the integrity of the whole book, only 26 were selected for the English version. The author hopes to communicate with both domestic and foreign friends in this profession and jointly promote the development of demography and population economics.

Wenxing Pavilion, June 2013  
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Xueyuan Tian





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# Chapter 1

## Corrections on the Population Theory and the Population Problem of China

### 1.1 Reverse the Verdicts on the New Population Theory Proposed by Ma Yinchu<sup>1</sup>

Ma Yinchu's book, *My Economic Theory, Philosophical Thoughts and Political Stand*, caused a great disturbance in the late 1950s, because the theory had been widely criticized and denounced for about 3 years prior to the book's publication. The attention brought by Ma Yinchu's book reached historical proportions, as all major newspapers and magazines were involved in its publication and several hundreds of relevant articles concerning the book were published.

However, over two decades of practices have reached a conclusion against the debate. The conclusion is the opposite of that formed in the late 1950s, when many people called Yinchu's new population theory a "poison" that attacked socialism and the Party (Communist Party of China). Nevertheless, his theory was a farsighted and effective remedy, which was beneficial to the country and its people. In the following pages, we shall dispose of the false accusations, reverse the verdicts on the new population theory, redress Ma Yinchu's theory, and restore his reputation.

#### 1.1.1 Defend the Dignity of Learning

After the foundation of New China, the mortality rate of the Chinese significantly declined and population rapidly increased, along with the restoration and development of the national economy and the improvement of people's lives. According to the 1953 census, China's total population had reached 601,938,035 with a birth rate of 37 % and a natural growth rate of 20 %. According to the statistics provided by five provinces and one autonomous region, the population natural growth rate each year had reached as high as 23 %. As calculated based on this growth rate, China's

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<sup>1</sup>This article was published by the *Guangming Daily* on August 5, 1979.

population would exceed an astonishing 700 million by the end of the 2nd Five-Year Plan, amounting to 800 million by the end of the 3rd Five-Year Plan.

Being an economist, Ma Yinchu knew that the reckless population growth would incur serious consequences. However, most people, including some state leaders, did not comprehend the seriousness of this problem, which made Ma Yinchu anxious. For the first time, during the Zhejiang Group Meeting of the National People's Congress in 1955, Ma Yinchu gave a speech on population control, but, surprisingly, some representatives did not agree and the proposal could not be submitted to the NPC. During the Supreme State Conference in February 1957, he addressed China's population problem again and was highly regarded by State Chairman Mao Zedong. Ma Yinchu was therefore greatly encouraged. In an interview with a journalist from *Wen Hui Pao*,<sup>2</sup> Ma Yinchu stated that "we can discuss on the population problem openly now, demonstrating the rapid progress of our country." At the age of 80, he still traveled, communicated with leaders, and made public presentations on the population problem, hoping much more attention would be paid to this issue. In June 1957, he proposed a written statement on the population problem to the 4th session of the first NPC, which was published in *People's Daily* on July 5 and was then known as the "new population theory."

However, the reaction to this theory was tumultuous. It was said that the bourgeois Rightists utilized the population problem to attack the Party, so any famous public figure that advocated for population and birth control was rebuked and criticized. Therefore, Ma Yinchu was in great peril. As expected, Ma Yinchu was soon criticized. Initially, these critical articles attempted to rationalize the differentiating theories, and Ma Yinchu read all these articles to ascertain whether they made sense. In reality, Ma Yinchu was just a man standing up for the truth and daring to correct mistakes. For example, when he once gave a presentation at Beijing University, someone pointed out a mistake he made in his presentation. He was humble in accepting the mistake and acknowledged it and then put up a poster to make his self-examination public.

The criticism against Ma Yinchu suddenly escalated in the latter half of 1959. At Beijing University where he worked, numerous big-character posters<sup>3</sup> were put up and meetings criticizing his theories were held; some even physically fought against him, attempting to settle with him for his previous behaviors, and even made personal remarks about him. Articles in newspapers and magazines cursed him unceasingly. Why did all this happen? It was because a theorist of the "left" was involved and issued a statement that Ma Yinchu's opinion was exactly like Dean Acheson's<sup>4</sup> opinion and therefore Ma Yinchu should be criticized in the same way.

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<sup>2</sup> A very famous Chinese newspaper.

<sup>3</sup> A kind of propaganda poster that is illustrated with big characters to criticize somebody.

<sup>4</sup> Dean Gooderham Acheson (April 11, 1893–October 12, 1971) was an American statesman and lawyer. He was the United States Secretary of State during the administration of President Harry S. Truman from 1949 to 1953. As Dean Acheson was criticized as the bourgeois Rightist at that time in China, here the theorist of the "left" compared Ma Yinchu to Dean Acheson and then criticized Ma as the bourgeois Rightist.



Ma Yinchu was confused by these attacks but understood the malice based on his experiences. At that time, he had two choices: first, accept the criticism and conduct a self-examination, which would enable him to pull through the situation, or second, firmly stand by his own opinion, which would definitely incur severe consequences. Ma Yinchu resolutely chose the second option. He stated in the accompanying declaration of *My Economic Theory, Philosophical Thoughts and Political Stand* that “though I am about 80 years old and hopelessly outnumbered, I will fight to the end, until death, by myself and never surrender to critics pressing me with power instead of persuading me through reasoning.” He showed his appreciation to his friends and unswervingly presented that “I feel sorry that I did not accept the advices, but I was very firm on my theory and I had to defend the dignity of learning, so I have to refuse the self-examination.” His meticulous theories decided his political determination, which was exactly the “secret” of why Ma Yinchu could fight to the last and, as some critics said, “go to meet his maker with his stubborn mind.”

### ***1.1.2 To Which School Does the New Population Theory Belong?***

The articles criticizing Ma Yinchu’s “new population theory” shared the same opinion that Ma Yinchu spread Thomas Malthus’ idea in China and was the “Thomas Malthus of China.” A big-character poster at that time asked “Which ‘Ma’ school does Ma Yinchu belong to: Karl Marx or Thomas Malthus?” It is believed that the key to reversing the verdicts on Ma Yinchu is to reverse the verdicts on his “new population theory” and thoroughly remove the label of “Malthusianism.”

Ma Yinchu’s basic concepts on population theory are correct and categorically belong to Marxism, not Malthusianism. Based on the surveys, he challenged the opinion of the Soviet Union’s textbooks on economics that the constant and rapid population growth is the law of population in socialist societies and analyzed the conflicts between the over-rapid population growth in China and the national economy, which mainly include the following: (1) The over-rapid population growth conflicts against the speed of the capital accumulation. “The biggest conflict of China lies between the over-rapid population growth and over-slow capital accumulation” and “the overpopulation obstructs China’s industrialization and rapid development.” (2) The over-rapid population growth conflicts against the improvement of labor productivity. “It needs to vigorously accumulate capitals, enhance the technical equipment of each worker, and control population to improve the labor productivity of industry, since the uncontrolled population increase will make it difficult to rapidly accumulate the capitals.” For agriculture, “the arable land per people had declined from 2.8 mu<sup>5</sup> in 1953 to 2.7 mu in 1955.” (3) The over-rapid population growth conflicts against the improvement of people’s living standard.

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<sup>5</sup>Mu, a traditional unit of land area, equals approximately 666.6666 m<sup>2</sup>.

“The tense supply of grains and pork, lesser value of cloth coupons, and insufficient coals are all related to overpopulation.” (4) The over-rapid population growth conflicts against the development of science. “It is impossible to meet the requirements of scientific research due to the restraints in China’s industrialization level and financial capacity, so in order to develop science, it is necessary to facilitate the capital accumulation and control the population, thus to prevent the population increase from obstructing the scientific researches.”

Then, what measures can be adopted to solve these conflicts and control the population growth? According to Ma Yinchu, “the first step is the extensive propaganda” to vigorously publicize the advantages of the family planning program, break down the traditional idea of carrying on the family name, and be rid of the feudal ideology of “having a baby boy” and “being blessed with many children and grandchildren.” Secondly, “revise the marriage law based on the achievements made by the propaganda” and carry out the policy of late marriage. To be specific, “it is proper for a man about 25 years old and a woman of 23 years old to get married.” Thirdly, he stated that “if the population control is still not strong enough, more strict and efficient administrative forces shall be applied.” He advocated rewarding families with two children, collecting taxes on families with three children, and collecting heavy taxes on families with four children. The taxes can be used as the reward, so it will not increase the burden on the national finance.

The basic content and main viewpoints of Ma Yinchu’s “new population theory” are stated as above, which were said to “negate the superiority of socialism” and “hate working people” at that time, and thus belonging to “Malthusianism.” The reason was that he regarded people as consumers, but not producers. According to the “manpower theory,” more people will enable more labors, more productions, more accumulations, and more rapid development, so the more people, the better, which was said to be the population idea of “Marxism.” Therefore, it was once proposed to change the word “population” to “manpower,” because the word “population” itself showed the characteristic of Malthusianism. Presently, the above logic is highly amusing, but it was a popular and authoritative idea at that time.

According to Marxism, the number, density, and development speed of population do not play a decisive role in social development, but “the growth of population shows influence on social development and facilitates or obstructs social development [25].” Ma Yinchu had clearly pointed out the conflicts between China’s population growth and the accumulation, consumption, and scientific development, which was in complete accord with China’s practices and the Marxism opinion on the population growth facilitating or obstructing social development and was non-related to Malthusianism.

It was of great significance for Ma Yinchu to timely propose to improve population quality and “improve the knowledge level” of people of all ranks. He conducted research based on both population quantity and population quality, regarding it as the fundamental approach to solving China’s population problem. He stated that “in poor China, of few capitals and large population, it is favorable to properly organize people and utilize the large population as a great resource, but meanwhile, the

negative effects of a large population cannot be ignored. The large population is a great resource, but it is also a large burden. My new population theory advocates maintaining the benefits, removing the harmful aspects, and keeping the great resource, in order to get rid of the big burden. The approach is to improve the population quality and control the quantity.” Ma Yinchu’s statement outlines the essence of the “new population theory,” clearly explains the theory, and positively points out the direction to the solution of the population problem in China.

In order to enable people to truly understand his “new population theory” and prevent any misunderstandings, Ma Yinchu often compared his theory to Malthus’ population theory, identifying the differences and profoundly revealing the essence and criticisms of Malthusianism. However, he was then condemned because he was said to “expose himself by criticizing what he really meant,” “publicize the Malthusianism instead of criticizing it,” and “be the actual Malthusian.” In fact, Ma Yinchu had seriously criticized Malthus. He pointed out that “Malthus aims to safeguard capitalism and capitalist governments based on his population theory,” demonstrated that the geometric increase of population and arithmetic increase of food had “gone bankrupt” with the rapid development of China after the foundation of New China, and opposed Malthus’ proposal to eliminate the current population through war, epidemic, hunger, and so on. Why, then, was Ma Yinchu’s “new population theory” regarded the same as Malthus’ “population theory?” Ma Yinchu was very angry about this comparison and said that “I am called a Malthusian by some people, but I regard them as dogmatists.” It may have been the only attitude that could have been adopted toward those who ignored the facts but put labels on other people regardless.

### ***1.1.3 Historical Lessons Shall Be Drawn***

Ma Yinchu had already cemented his status as a famous economist before the foundation of New China. He was an excellent representative of democratic patriots who firmly stood against the four big families<sup>6</sup> and bureaucrat-capitalists, opposed Chiang Kai-shek’s dictatorship, attended several democratic movements against Chiang Kai-shek, and had been put in prison by Kuomintang. At the foundation of New China, he was invited to Beijing to participate in the management of State affairs. He sincerely supported the Party and socialism and was determined to contribute his life to the socialist cause. He was a member of the Central People’s Government, a member of the Standing Committee of NPC, the Deputy Director of the Finance and Economics Committee of the Central People’s Government, Deputy Director of East China Military and Administrative Commission, and the President of Zhejiang University and Beijing University. Yinchu had made great contributions

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<sup>6</sup>The four big families include Jiang Zhongzheng, Song Ziwen, Kong Xiangxi, and Chen Guofu and Chen Lifu’s families, who occupied a large part of social wealth.

to the development of China's economy and education. However, such a highly respected man was removed from his position simply due to his population theory, which incurred adverse influence over the academic world and the democrats of all ranks. Lessons must be drawn from these events, which are detailed in the following paragraphs.

Firstly, correctly handle the relation between academic matters and political matters. Academic matters, especially those relating to social science, often relate to political matters, but they belong to different categories and therefore shall be solved in different ways. Ma Yinchu proposed the population problem at the Supreme State Conference as a deputy of NPC, which was a political issue in terms of state political life, and it was up to the government to decide how to deal with the opinion and proposal. However, the population problem he proposed was essentially an academic and theoretical problem, which should only be solved upon free discussion, setting forth facts, and reasoning according to the guideline of "a hundred schools of thought contend." The majority shall not exert pressure on the other side based on its advantage in the number of people. The truth of academic problems is left in a few hands. However, the "great debate" in the late 1950s violated this principle. The "left" theorist involved criticized Ma Yinchu, comparing him to Dean Acheson, and turned the academic problem into a political matter, thus blocking people from revealing the adverse effect of population overgrowth on the national economy and the appropriate measures that should be adopted.

Secondly, ensure the democratic environment. A strange phenomenon appeared in the "debate": most people stood on one side of the issue, while only a few stood at the opposite. Did this mean that only a few people agreed with Ma Yinchu's idea? The answer should be no. Ma Yinchu stated that "since my article was published on the 11th issue of the *New Construction*, many people started to believe in me. However, some did not dare to sign their names, but only wrote 'your sincere reader.' It revealed that I had to play a one-man show in the current situation." In fact, many people agreed with Ma Yinchu's new population theory, because his theory emphasized that the economic balance was basically correct. However, few people dared to defend his theory due to the lack of both political and academic democracy. A "debate" under these conditions could never attain any truth.

Thirdly, adhere to the guideline of "practice is the sole criterion for testing truth." In the past, the population growth was featured with a high birth rate, high mortality rate, and low growth rate. After the foundation of New China, the Party and government had effectively solved the problems of unemployment, famine, hunger, and disease; significantly lowered the mortality rate; and brought about the rapid growth of population. Based on these conditions, Ma Yinchu proposed the "new population theory" upon relevant researches and studies. However, some people did not proceed from reality or carefully study the new problems and conflicts of population development but acted according to books and the will of the authority and criticized others with the old dogma, incurring the serious population problem today. Practice is the sole criterion for testing truth and the sole criterion for testing the population theory and population policy. The principle of Marxism shall be followed in the research on, and solution to, China's population problem.

## 1.2 On the Theory of Cost-Efficiency for Children and Population Control<sup>7</sup>

In recent years, China has experienced a significant increase in birth rate and population growth rate. China's population exceeded 1.1 billion by April 14, 1989, attracting worldwide concern for the critical population situation. Under the new trend of reform, and with the rapid development of the commodity economy, China shall adapt to the new situation, make new breakthroughs in the combination of theories and practices, and adopt practical and effective measures in order to effectively control population growth. It is believed that the focus for breakthroughs lies in rationalizing and straightening out the relation between giving birth and economic benefits, better reflecting the principle of benefit, and gradually completing the transformation of the interest selection of childbirth and the transition from the administrative system to the benefit regulation system on population.

### 1.2.1 *On the Theory of Cost-Efficiency for Children*

Before the relation between giving birth and economic benefits can be discussed, an ancient but practical problem shall be answered: What factors decide the number of births? The answers are inevitably different between the ancient and current period. The "ancient period" as referred to here does not refer to the ancient stage of human social development but the stage when people did not know or could not control the number of births. Obviously, the natural laws of biology dominated childbirth in this stage. A woman of childbearing age may give birth to 11 children in 408 months, from the age of 15 to 49, if the interval between two children (including the pregnancy and lactation period) was 37 months, and may give birth to 9 children if the interval was 45 months. Though this situation is rarely seen in current times, according to the weighted summary of the sample survey on the aged population (over 60 years old) made in 1987, 5.4 % of them had given birth to only one baby in their entire life, 6.9 % had given birth to two children, 11.3 % had given birth to seven children, and 25.8 % (the highest proportion) had given birth to eight children. This reveals that China's childbirth rate and the number of births had been dominated by the natural laws of biology.

Owing to the economic development, progresses of science and technology, and the improving idea on childbirths, human beings have finally freed themselves from the dominance on childbirth by the laws of biology; they have started to take control of the number of children they have. It is one of the greatest and epoch-making achievements in human progress. For example, imagine that China and the world could not control birth rate. What would the fate and prospects of China and the world be? Therefore, the family planning program is a monumental and progressive

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<sup>7</sup>This article was published in the *Population Science of China*, 3rd issue, 1989.

cause related to the prospects and fate of mankind, the state, and nation. Then, what factors decide the number of births after human beings began to be able to control their own childbirth rate? The answer should be economic, cultural, political, historical, and geographic factors, with the economic factor as the most essential and fundamental.

Historical materialism believes that social existence determines social consciousness and the ultimate cause of social phenomena derives from economy. In recent times, after the capitalist Industrial Revolution, all of society has become increasingly commercialized; this has occurred in conjunction with the development of the commodity economy and the dominance of the pan-commodity concept, and even the incorporation of children, as proposed by some economists in the range of commodities. Differently, the special commodity cannot be bought in the market but is produced by the family. Therefore, the theory on the cost-efficiency or cost-utility for children was generated, with Professor Harvey Leibenstein from Harvard University, and G. S. Baker, an expert in human capitals from the University of Chicago, as the representatives of this theory. Harvey Leibenstein believes that the cost of the commodity of children consists of two parts: the direct cost and indirect (or opportunity) cost. The direct cost refers to the cost of living, education, marriage, and some other direct expenses related to raising a child, while the indirect or opportunity cost refers to the reduction of incomes of the parents, especially the mothers, incurred by the time lost in raising a child. The direct and indirect costs are both the parents' losses, also known as the negative benefit or utility. However, children also bring a positive benefit or utility for parents, which mainly includes the following: (1) the labor-economic efficiency, which refers to that a child can bring economic benefits to his or her parents after he or she becomes a labor; (2) the old-age insurance efficiency, since parents in developing countries largely depend on their children when they are old; and (3) the consumption-pleasure efficiency, because the special consumer goods (children) can meet the spiritual demands of parents and bring the love of a family. In addition, children are also featured with the risk efficiency of bearing the development of family business, as well as the efficiency of inheriting and maintaining the family status, etc. Parents' demands on the quantity of children depend on the cost-effectiveness of the direct or indirect cost of children. If the cost-effectiveness is a positive number and the efficiency is higher than the cost, then the child is needed; if the cost-effectiveness equals to zero and the cost is equal to benefits, the demand on children is decided by the random factors; and if the cost-effectiveness is negative and parents cannot gain due compensation from their costs on children, then the child is not needed. From a dynamic perspective, along with the economic development and increase of per capita incomes, children's role of the labor-economic efficiency has declined; the economic development lays the material foundation for the social guarantee system and parents can accumulate enough money after they are retired, so the children's role of the old-age insurance efficiency has been lowered; other efficiencies, including the risk efficiency of bearing the development of family business and the efficiency of inheriting and maintaining the family status, have been lowered accordingly; and

only the consumption–pleasure efficiency has no significant change and shows no necessary relation with the economic development. At the same time, the direct or indirect cost on raising a child has generally increased. Therefore, along with economic development and increase of per-capita income, the efficiency on children has declined and the cost has risen, which is the main factor contributing to the decrease of birth rate and growth rate of population.

G. S. Baker further proposed the concept of the net cost for children, i.e., the present value of the currency cost incurred on parents to raise the child, adding the present value of shadow price of the time<sup>8</sup> and deducting the present value of the incomes and service provided by the child to the family. If the net cost is positive, the child cannot compensate parents' losses and therefore only plays the spiritual and psychological efficiency for parents like a piece of durable product; if the net cost is a negative number, the child can bring value increment after it is put into operation like the means of production; and if the net cost is zero, the child is meaningless for parents. He also proposed that the basic living cost for the child and the direct and indirect cost incurred in the pregnancy and parturition were fixed under a certain social productivity level and could be regarded as the fixed or number cost; and meanwhile, the costs on health, medical care, culture, and education for children are constantly changing and therefore are known as the variable cost or quality cost. The variable or quality cost for children is significantly increasing, along with economic development and the growth of family income. In addition, owing to the substitute relation between the quantity and quality of children, parents prefer to invest in the quality, instead of the quantity cost, leading to the decrease of birth rate and the number of childbirths.

How should the cost-efficiency theory for children in western microeconomics be viewed? The author believes that regardless of the category of the product, the theory reasonably describes the essence of childbirths, scientifically elaborates children's value to parents and families, and reveals the economic strength of population reproduction. Due to the backward productivity, an underdeveloped commodity economy, and the indifferent understandings and concepts of commodities, China is not willing to introduce the commodity principle into the childbirths. However, it does not necessarily mean that Chinese people ignore the economic benefits of children; on the contrary, they consciously or unconsciously take the economic benefits into consideration on whether or not to raise children. It shall also be noted that parents invest real costs on children but gain expected benefits from children, which is a different concept from the actual benefits provided by children. The abstract concept is reasonable, as it is established on a certain productivity level, cultural level, and traditional concepts.

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<sup>8</sup>Shadow price is an alternative price assessment for products, service, or labors without a market price. Here it refers to the time loss for parents to raise a child. Though the time consumption does not belong to the time of market activities, it can be incorporated in the cost on the child.

### ***1.2.2 Variation of the Current Role of Children's Cost-Efficiency in China***

Since reform and opening up, China's economic and social existence has seen a significant change; the development of commodity economy and enhancement of commodity awareness makes it more possible and necessary to conduct the cost-efficiency research on children. The research may help China identify the root of the population overgrowth problem and propose a theoretical permanent solution to the problem.

The basic tendency of the current variation of children's cost-efficiency in China can be determined from two aspects. First, in terms of efficiency, the labor-economic efficiency of children has been promoted. As mentioned above, the quality cost for children has been raised along with the development of social economy. Under the conditions of market economy, including labors, if the additional cost for children is utilized to transact with labors in the market, more labor benefits can be obtained, leading to the decline of the labor-economic efficiency of marginal children. Based on this reasoning, the labor-economic benefits should have declined owing to the rapid economic development in recent years. However, except under special circumstances, the labor-economic efficiency of children has generally increased. This situation mainly resulted from the different foundation. Previously, under the whole-people ownership in urban areas and the collective ownership of the people's commune in rural areas, the principle of distribution according to work had not been well implemented; everyone "ate from the same big pot," and the families lost their functions of production, but only played their roles as a unit of consumption and population reproduction. Since the increase of labors only brought limited economic benefits, people showed less interest in giving birth to more children in order to increase labors. After the reform of the economic system, the rural areas adopted the contracted responsibility system, and later the individual economy and several kinds of leasing systems and joint-stock systems were employed in urban areas. Then, the function of production of many families had been restored and improved at the competition, which stimulated people's demands on labors, especially the male labors. Of course, no one is born as a labor, but everyone can grow up to be a labor after the stages of baby, child, and youngster. However, the time it takes for the child to grow up to be a labor may be shortened under the low-level technological structure, when teenagers could engage in some supporting work and children would become complete labors around the age of 15, so labor-economic efficiency could be given full play to earlier. This situation was very common in China's rural areas and the private and joint ventures of low-level technological structure in urban areas, with child labors as an example. Secondly, despite the rapid economic development in recent years, the increase of income still largely depends on the number of labors due to the low level of technological structure. The increase of the quality of labors cannot replace the increase of the quantity, and the labor-economic efficiency of marginal children is still evident. Thirdly, the market economy is unsound and the labor market plays a limited role in regulation, so there is no guarantee that



corresponding labor service will transact with the labor cost saved by giving birth to fewer children. Under these conditions, the labor-economic efficiency of children has been enhanced to some extent, especially in rural areas.

Secondly, the old-age insurance efficiency of children has been improved. According to the western theory on the cost-efficiency for children, the social guarantee system is established and is constantly improved along with social and economic development, which will gradually replace children as the mainstay of the old-age guarantee system. Currently, main developed countries of the world have realized this goal, but China is not undergoing the same situation. In addition to the low economic development level and limited increase of incomes, the fundamental cause is the different foundation and condition. Different with the current slight variation in urban areas, the old-age insurance efficiency of children has been significantly enhanced in rural areas. Previously, the people's commune assumed the responsibility of old-age insurance as an economic entity in rural areas, but currently, this kind of economic entity has disappeared and original old-age homes and nursing homes have been dismantled or prejudiced without economic support, so children's role in the old-age insurance has been promoted again. There is no guarantee that children will bear their responsibilities of old-age insurance, so parents' investment is considered a kind of risk investment, which is constantly growing owing to the increasingly smaller families and fading traditional concepts. However, childbirths are the most important and guaranteed way for old-age insurance, so parents' desire for children is stimulated, especially the desire for boys that are traditionally more reliable for the old-age insurance.

Thirdly, owing to the restoration of the families' production functions and the industrial expansion, children's efficiency of maintaining the family status and bearing the development of the family business has been enhanced as well, and boys evidently enjoy higher efficiency in this aspect. In conclusion, parents' expectation on children's efficiency has grown under the current economic situation, which is the internal and fundamental cause for parents' desire to give birth to male children.

It shall be noted that the above only analyzes the internal economic cause for the high birth rate and fertility rate in China, based on the influence of economic variation in China on the cost-efficiency of children. To be specific, the tendency of the cost-efficiency of children is necessarily related to other conditions, especially the variation of the number of women of childbearing age and the economic measures of the child-birth policies. Since 1949, China has experienced three surges in childbirth: from 1953 to 1957, from 1962 to 1973, and the current period. The first small surge and the second big surge contributed to the large population of youths in the "pyramid" of the age structure. Women in this large youth population reached their peak childbearing age between 1986 and 1997 and therefore inevitably gave rise to the third surge of child-births. The only measure China could take was to try to lower the surge of childbirth.

The change of the award/punishment measures in the family planning policy directly relates to the tendency of the cost-efficiency of children. In China's current population policies, the reason for punishment is to increase the cost for children born outside the family planning, while the award essentially improves the efficiency of the only child, compensates the loss of efficiency incurred by only

giving birth to one child, and pursues the balance of cost-efficiency of children based on the economic lever. However, for the fines on children born outside the family planning, the poor peasants in rural areas have no money and could never afford the fines (no matter the amount); therefore, they are not afraid of fines, and the “ten-thousand-yuan families,” i.e., the rich families, do not care about the fines, because paying them is of little consequence to the rich families. Other additional economic measures can no longer function or increase the cost on the children born outside the family planning policy, such as the policy of not providing children born outside of the plan with private lots or grains in some rural areas and the policy of not providing them with commodity grains and employment quotas in some urban areas. For the awarding measures, an award of five yuan was awarded each month to families who stayed within the family planning, but inflation has caused a severe devaluation of the yuan, deeming the award insufficient. In addition, the priority in schooling and employment showed lower influence on increasing the efficiency of the only child. The imbalance in both award and punishment aggravated the tendency of the cost-efficiency of children. Since China has not made adjustments accordingly, appropriately increased the cost of marginal children, or improved the new balance of the cost-efficiency of children by raising the efficiency of the only child for parents, the significant rebound of the population birth rate and growth rate has appeared.

### ***1.2.3 Birth Control Based on the Cost-Efficiency of the Child***

It is a very important, but difficult, task to effectively control the birth rate and create a favorable population environment for reform and modernization construction when faced with the population growth in the new surge of childbirth. Since the 1970s, China has significantly lowered the birth rate and growth rate of the population and accumulated rich experiences in the family planning work, including focusing on propaganda, education, regular work, and contraception; strengthening the statistical work and supervising and implementing the responsibility system of the program objectives; and the emphasizing and doing of work by leaders. There is no doubt that these successful experiences, including the administrative, legal, and economic experiences, shall be employed and developed in the family planning and population control. Previously, China focused on the administrative means by which to control population; China tried to control the birth and population rate through carrying out the birth quota by administrative organizations and forces at all levels. This was necessary and natural in certain historical conditions of China. China will suffer the economic shortage and overpopulation for quite a long time, so the guiding principle for the future development is to vigorously promote economy and meanwhile control the overgrowth of population. Two possible approaches can be adopted to lower the birth rate and population growth rate: The first is the natural approach, referring to a natural decline in birth rate and growth rate, along with the social and economic development, the increase of per-capita income, and improvement of the cultural level. The second is the social approach, which refers to the government’s adoption of

policies to control the growth of population. Obviously, the natural approach cannot be employed, since it cannot effectively and accurately control the population growth. In addition, it will be difficult to estimate how China's population will grow and the number of the population, which is harmful for national development and fundamental benefits of the whole nation. The only choice is the social approach. However, this approach conflicts against China's low economic level. Regarding the law of "poverty giving rise to large population," China has to adopt the administrative means as the main method of population control. The author believes that the mechanical materialism cannot be applied in the relation between the population control and economic development, since the theory suggests that people can do nothing to control childbirth and the birth rate and growth rate of population can only decline along with economic development. Meanwhile, the subjective idealism shall also be avoided, as the theory states that childbirth and fertility have nothing to do with economic development and wholly depend on people's will. The dialectical materialism shall be employed, which means to recognize the decisive role of economic factors on childbirth, meanwhile recognizing the role of noneconomic factors, including the administrative factors, and properly apply these noneconomic factors to adjust the variation of people's childbirth and fertility rate and, at the same time, confirm the decisive role of economic factors in the number of childbirths and timely incorporate the noneconomic factors in the principle of economic benefits. Presently, it is the time for China to consider the administrative measures based noneconomic factors into the population control and start to follow the principle of economic benefits.

Firstly, over almost two decades, the administrative practices have attained good results and shall be effectively applied in the future. However, these administrative means have also brought about many problems and made it difficult to complete the work, because the mandatory control and management of administrative means do not meet the cost-efficiency of individuals and families; the loss incurred by parents from the only-child policy cannot be compensated and the parents having children born outside the family planning policy enjoy much greater benefits than the cost, which influence the results of the administrative practices.

Secondly, since the 1970s, it has been very important to consolidate and develop the results of the family planning policy in order to better control the birth rate in the current (third) surge of childbirth. Therefore, parents of an only child must firstly be assured that they can obtain practical benefits and be provided with a practical guarantee in labor subsidies and old-age insurance so that they will not give birth to more children; and secondly, avoid parents with children born outside the family planning from obtaining economic benefits, making them an example and warning to the rest. The principle of economic benefits shall be followed to lead people to give birth to fewer children by interest guidance.

Thirdly, the urban and rural economies have attained great development in the decade of reform and opening up, after China ended its closed and semi-closed economic status, rapidly developed the commodity economy, and enhanced the commodity awareness. Therefore, increasing attention has been paid to the economic value of children, and serious consideration has been given to the theory and role of the cost-efficiency of children.

According to the above opinions, the ground and the basic principle of the theory on population control and the solution to the population overgrowth can be summarized as below. In order to fundamentally change the tendency of the adverse cost-efficiency of children, the interest selection of childbirth must be gradually formed and the system shall be transformed from the administrative management of population to the interest adjustment. Both the cost and efficiency shall be incorporated in the solutions to the problem.

Regarding the efficiency, the main problem is to raise the efficiency of the only child for parents, meanwhile reducing the efficiency of children born in excess of the plan. The most important method to raising the efficiency of the only child is to truly implement the reward policy for the only child and reform the awards. Currently, in many places, the monthly award of five yuan is granted to the families of only child, but the award cannot be realized in a great number of villages, especially those economically backward countries. The reason lies in that the award is actually assumed by local peasants, so peasants bear heavier burden in places of more only-child families, which, on the contrary, influences the rate of only child. This situation shall be changed. Based on the comparison between the monthly award of five yuan for parents of only child and the payment to raise another child, the latter costs the government several times (even a dozen times) more than the previous, in addition to the macro influence on the solution to the conflict between the shortage economy and overpopulation. Therefore, in principle, the government shall assume the award for parents of an only child. The local finance can bear more owing to the tension of the national finance. At the same time, the government can utilize the income against the expenditure, i.e., collect fines from the parents of children born outside the family planning policy and pay them as the award for parents of an only child, and therefore, the balance between the income and expenditure can be maintained. In conclusion, the award for parents of an only child must be implemented; otherwise, it is impossible to raise the efficiency of the only child for parents.

Based on the implementation of the award to parents of an only child, in order to compensate the loss of labor efficiency and old-age insurance efficiency incurred by the only-child policy, the issuance and utilization of the award must be reformed. Evidently, the monthly award of five yuan, or the annual award of 60 yuan, could play a significant role in the 1970s but did not work in the 1980s due to inflation, so it became possible to reform the award for only-child families to provide labor subsidies and old-age insurance for parents of an only child. The method is to temporarily hold the monthly award of five yuan, or the annual award of 60 yuan, and deposit them in the insurance companies or banks. According to the value preservation and increase of 14 %, the interest rate of the treasury bond, the value of these awards will reach 2,600 yuan after 14 years and then, for example, pay these parents an annual labor subsidy of more than 360 yuan for 16 years. Then, after 15 years, turn these awards to the old-age insurance funds, and after another 5 years, these parents can obtain an annual endowment of more than 800 yuan until their death. In this way, the monthly award of five yuan for only-child families can be given full play and can largely compensate the loss of labor efficiency and old-age insurance efficiency incurred by the only-child policy and will help to solve their future problems.

The current irrational condition shall be changed and those who remain unmarried or are infertile shall share the same treatment in terms of labor subsidies and old-age insurance funds as parents of an only child. In order to improve the efficiency of the only child for parents, these only-child families enjoy the priority in the distribution of houses, rural residents becoming urban residents, preschool education, schooling and employment for the only child, as well as the permanent life insurance for their whole life, in order to enhance their risk efficiency in taking over the family business and maintaining the family's status.

In addition to raising the efficiency of the only child for parents and families, the government can restrict the children born outside the family planning in preschool education, schooling, housing, employment, subsidies, household registration, etc., in order to reduce their efficiency for parents and families, prevent them from reaching their parents' high expectation of efficiency, and lower families' pursuit in the number of children.

In terms of the increase in the cost of children, the main task is to increase the cost for the children born outside the family planning and the quality cost of children. It needs to increase the fines on parents of children born outside the family planning and extend the duration of fines, to add the suspicion of whether the efficiency of children in the future can compensate the increased cost for children born outside the family planning, and therefore influence on childbirth. However, the economic capacity of these parents shall be taken into consideration to make sure they are able to pay the fines. It will be better to set the duration of fines equally with the duration of awards to the only-child families, i.e., 14 years. A national standard shall be formulated on the amount of fines. For example, if the fine for a child born outside the family planning shall be equal to the per-capita income of the place where the child is born, provinces, autonomous regions, and municipalities directly under the central government shall formulate the amount of fines for different regions. Once the method of fines has been approved by relevant departments, the method becomes legally effective and shall be carried out according to economic laws and regulations.

As mentioned above, it is a necessary result of social progress and economic development to improve the quality cost of children, especially the investment on the intellectual education of children, but the present situation is somewhat unsatisfying. In addition to the insufficient amount of importance attached to education and the slow increase in the investment in education, the fundamental cause of this lies in the irrational distribution. It is now commonly said that "the professor is no better than the vendor" and "the doctor is no better than a hairdresser," which greatly reduces people's initiative to invest on education and intellect. Therefore, it will be difficult to raise the quality cost of children if the current situation remains; and owing to the stability of the quantity cost of children, the total cost for marginal children can hardly be increased without the increase of quality cost for children, which will lead people to pursue the quantity of children. In order to fundamentally change the situation, the government shall increase the investment on population intellect and vigorously develop education; the key is to fundamentally change the extremely irrational distribution that no significant difference lies between brain work and physical work, and even the brain work enjoys fewer remunerations.

Though it may be difficult to increase the income of brain workers to a high level due to the constraints by the financial strength, then the guiding principle, measures, procedures, and mechanisms shall be formulated and implemented, along with the economic development, in order to adjust the unfair distribution between the brain worker and physical worker and between the complex labor and simple labor, to moderately enlarge the gap of the income levels, encourage people to invest more on the education and intellect of children, increase the quality cost of children, and therefore lead parents to transition from the pursuit of the number of children to the pursuit of the quality of children.

Based on the measures in terms of both the cost and efficiency of children, the parents giving birth to fewer children, including those having only one or no child for their whole life, will obtain greater efficiency with a lower cost, while the parents having more than one child will obtain no greater, or even smaller, efficiency with a higher cost. Then, parents will voluntarily give birth to fewer children owing to the cost-efficiency of children, leading to the decline in fertility rate. Correspondingly, the population management sector of the country may transfer from a department relying on the administrative management over the population to a welcomed organization that safeguards the legitimate rights and interests of the only child, children born inside the family planning, and their families. The department will collect fines against children born outside the family planning policy according to laws and regulations, coordinate with relevant financial departments for financial supervision, provide information and service for family planners, and directly work in their interest. The population control will transfer from the original administrative mechanism to interest-adjustment mechanism, which, as a fundamental change, will lead the development from the realm of necessity to the realm of freedom.

### 1.3 The Population Control Under the Market Economy<sup>9</sup>

This article applies the theory on the cost-efficiency of children in population micro-economics in China's new experiences and situations after the reform and opening up and discusses the mechanism of population control from multiple levels in the socialist market economy system. According to this article, at the microlevel, it is necessary to increase the efficiency of the only child and the children born inside the family planning, meanwhile raising the cost of the children born outside the family planning and increasing the material standard of life and income of brain workers to enhance the benefit-based adjustment and establish a benefit adjustment-oriented population control mechanism, in order to adapt to the new system; at the middle level, it is necessary to develop the community economy, culture, and service to fundamentally change the objective conditions for the cost-efficiency of children and facilitate the

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<sup>9</sup>This article was originally published in the Tian Xueyuan, *Social Sciences in China*, 6th issue, 1993.

decline of the fertility rate, and meanwhile change people's outlook on childbirth and implement the population polices, thus to combine the population control and the benefit selection for families' childbirth; and at the macroscopic level, China shall promote the government's ability of macro and comprehensive control and regulation in terms of the population policy, strategic principles for development, management mechanism, and the measures, research, and propaganda of population science.

It is of great significance to establish the socialist market economy to the reproduction of the Chinese population and, particularly, the population control, which determines the direction of the reform of the population control (The population control in this article refers to the control of the population size.) mechanism in the future. New ideas on these problems are presented based on the experiences in the control of the 200 million population in the coastal areas that firstly benefit from reform and opening up, as well as the population in the inland areas where the market economy is under construction.

### ***1.3.1 Micropopulation Control: Promoting the Interest Adjustment***

According to the theory on the cost-efficiency of children in western micropopulation economics, parents need to pay the cost for any child they have from conception until the child becomes a labor. The cost consists of the direct cost, the cost of living, education, marriage, and some other direct expenses; and the indirect cost, the cost due to the reduction of incomes of parent; and the losses incurred by the time loss for raising a child. Of course, people do not aim to afford the cost by raising a child but aim to obtain corresponding efficiency. The first is the labor-economic efficiency, which means that a child can bring economic benefits for his or her parents and family after the child becomes a labor. The second is the old-age insurance efficiency, since parents in agricultural countries largely depend on their children when they are old. The third is the consumption-pleasure efficiency, because the special consumer goods (children) can meet the spiritual demands of parents and bring love to a family. In addition, children are also featured with the risk efficiency and safety efficiency of inheriting the family fortune and bearing the development of family business. However, higher importance is attached to the first three kinds of efficiency. Based on this theory, whether parents will give birth to a marginal child depends on their estimation on the cost-efficiency of the marginal child. The child is not in need if the net cost is a positive number; the child is needed if the net cost is negative; and if the number equals zero, the demand on children is decided by random factors. Under the same economic condition, different families share similar living costs and indirect costs for marginal children in the same sequence, which can be regarded as the quantity cost or fixed cost. However, different families pay very different costs on medical care and especially education for children, which are called the quality cost or variable cost. The quality cost for children is significantly increasing and the quantity cost is decreasing along with

economic development and constant progress of science and technologies, so parents prefer to invest on the quality instead of the quantity cost, leading to the decrease of birth rate. Despite different comments on the theory of cost-efficiency of children and the different opinions of the main representatives of the theory, the theory is of great significance since it links childbirth to the economic gain and loss of families and unveils the primitive cause for the decline in birth rate. The theory can be referred to when the influence of economic development on population control in the process of reform and opening up and the construction of the market economy are analyzed.

The achievements in the population control in the recent two decades mainly result from the implementation of the basic state policy of the family planning, but the childbirth in China is still influenced by the law of the cost-efficiency of children. The policy shows an obvious impact on the birth of the second child and the birth of only child is a contribution to the state and national interest, while the award is a compensation for the family not giving birth to the second child, though the award is not enough. The fine for children born outside the family planning policy is a compulsory behavior to increase the cost of these children based on the external social force, which aims to break the cost-efficiency balance of children born outside the family planning, though it may not be so effective in most circumstances. The reform and opening up, and particularly the construction of the socialist market economy, present both the challenge and opportunity for population control. On one hand, China's economic reform shall be first started in rural areas in the form of the household contract responsibility system with remuneration linked to output, to unify labors with the right of land use and unify the labor work with remunerations, restore and strengthen the production function of families which had disappeared for more than 20 years, improve the labor-economic efficiency and old-age insurance efficiency of children, and stimulate people's demands on children, especially sons. The rapid development of individual economy, private economy, and foreign-funded economy in the urban economic reform also aggravates the cost-efficiency unbalance of marginal children, especially male marginal children, and leads to new difficulties and problems in the population control. On the other hand, fundamentally, the reform and opening up and the establishment of the market economy will necessarily liberate, develop, and promote the scientific and technological progress and further incur the rise of the cost for children, especially the quality cost, after a certain stage. Meanwhile, the decline of the labor-economic efficiency and old-age insurance efficiency will also facilitate people to transfer the large investment on the quantity cost of children to the quality cost in order to lower the birth rate. The reform and opening up policy and the market economy exert different dual roles in the population control. Generally, at the beginning of the reform of underdeveloped social productivity, reform and opening up policy and the market economy will mainly stimulate the birth rate; along with the development and deepening reform of productivity, their main role is to facilitate the decline of the birth rate. The academic circle has made investigations and discussions on the turning point, i.e., the per-capita income, on which they change their role. The research on this issue has been promoted. However, in addition to economic factors,



many social factors also influence the variation of the birth rate, which shall be taken into consideration of the turning point; and in addition, though the per-capita income is a major indicator of economic factors, some other indicators also play important roles, particularly the role of the technological structure on the transfer from the quantity cost to quality cost. Therefore, the subject on the confirmation of the turning point needs further research. The difficulty lies in how to integrate these relevant indicators and decipher the indicator system and the magnitude for the turning point under the current economic, cultural, population, and social structure. Attention shall be paid to the differences among various regions, while the magnitude for the turning points of different regions may significantly vary and need concrete analysis. It is evident the transformation has been largely realized in regions of reform and opening up and rapid economic development under certain population, economic, and technological structure, such as the Yangtze Delta, Bohai-Rim Economic Circle, and some other coastal areas. In these areas, apart from the rapid economic development that makes investment on intellect possible, the new stream of thought and the development tendency of “agriculture for stability, industry for prosperity, and science and technology for new path” brought about by reform and opening up has put forward higher requirements on the quality of labors, and people without a middle school education or above, or corresponding professional knowledge, can hardly find a decent job, so it objectively requires and pushes the transfer from the investment on quantity cost to quality cost of children. In comparison, some areas lead the way in reform and opening up and the construction of the market economy and enjoy a rapid economic growth, but the transfer from the investment on quantity cost to quality cost of children does not appear. The special population and economic structure of these areas, and higher requirement on the magnitude of the turning point due to the specific requirements and measures of family planning in these areas, may decide this outcome. However, based on research, the population variation in these areas suggests that these areas are approaching the critical point for the change, and once the critical point is reached and completed, the speed and strength of the transfer may be more typical.

Throughout the country, the influence of reform and opening up and the gradual establishment of the market economy on the birth rate have taken shape, which is illustrated by the natural variation of nationwide population in the recent decade. As calculated based on the age structure and the peak of births from 1953 to 1957 and the decline from 1958 to 1961, a new peak of births should have formed between 1976 and 1980, and a new decline of birth should been between 1981 and 1984, which was inconsistent with the practical situation. According to the arithmetic average, the birth rate between 1976 and 1980 was 18.62 %, with a natural population growth of 1.30 %, while the birth rate from 1981 to 1984 was 20.83 %, with a natural population growth of 1.41 %. The situation was completely contrary to the calculation. Of course, the adjustment on the population policy and the execution of the family planning were the main reason for this situation. However, the author believes that the constraints in the childbirth by the variation of the cost-efficiency of children at the early stage of reform and opening up and the low productivity of the market economy also played important roles. The constraints also show the

influence in following variation but turn from stimulating to inhibiting the population growth. In the biggest surge of birth between 1962 and 1973 since the foundation of New China, an extremely large population was generated, which should have led to another high tide of birth from 1986 to 1997. However, the population birth rate based on the arithmetic average is only 21.74 %, with a natural growth rate merely of 1.50 %<sup>10</sup> between 1986 and 1991, not much higher than the period between 1981 and 1984. The low birth rate in the estimated high tide of birth is primarily creditable to the emphasis placed on the population control by central and local governments, the stable policy of family planning, efforts of Party and governmental leaders, and the change of people's idea on birth; and meanwhile, the reform and opening up and rapid development of the market economy, as well as the rapid growth of national economy, strongly promoted the role of the cost-efficiency of children in inhibiting the population growth. In other words, on one hand, the market competition and the mechanism for selecting the superior and eliminating the inferior has facilitated the competition among products and enterprises, which is essentially the competition on talents and development and cultivation of human resources and thus stimulates people's initiative to increase the investment on intellectual resources to improve the quality of the population; and on the other hand, the models of "science and technology leading to wealth" and the improvements on the remunerations for scientific and technological talents have reduced the efficiency of marginal children, pushed people to turn the investment from quantity cost to quality cost and from pursuit of more children to pursuit of fewer children of better quality under the market economy, and gave rise to the performance of several models in open coastal areas with their own characteristics, including Zhejiang, Jiangsu, Shandong, and Liaoning. Currently, the depth and width of reform and opening up and economic and technological progress may stimulate or inhibit the population growth, but, along with the development of reform and opening up and the constant improvement of the socialist market economy, the national economy will maintain a high growth rate, ensuring the efficiency and facilitating the change of its role from stimulation to inhibition and transferring from the investment on quantity cost to quality cost. In this aspect, the completion of population control and transformation depends on reform and opening up, economic development, and technological progress.

However, China shall not rely on the "natural transformation" of population control based on economic reform and development. Since the establishment of the market economy provides favorable conditions to facilitate the transformation, it becomes possible to promote the interest adjustment to regulate the childbirth of individuals and families and the quantity of the childbirth. Experiences can also be drawn from some local practices, which means to increase the efficiency of the only child and the children born inside the family planning, reduce the efficiency and raise the cost of children born outside the family planning, make people actively adjust the number of children they bear owing to their economic benefits, and gradually establish the self-control mechanism for population control, according to the practical situation of the capacity of Chinese economy, population, and

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<sup>10</sup>Data source: Zheng Jiaheng, *Statistical Yearbook of China 1992*, China Statistical Publishing House, (1992), 78.

social structure. The author considers the following aspects of reform to be extremely important.

Firstly, effectively increase the efficiency of the only child and the children born inside the family planning. Two practical measures can be adopted in the current reform:

The first is to provide insurance against injuries and death for the only child, in addition to the award for the only child, and provide parents of the only child with old-age insurance funding after the award for the only child ends at the age of 15. This method does not issue the award for the only-child families of 10 yuan per month (5 yuan in some areas) but saves the money as a fund for insurance against injuries and death for the only child, so the parents can get some benefits even if the child dies young or becomes disabled. For most children who do not die young or are without injuries, the money will be transferred to the old-age insurance fund for their parents, and parents will receive a certain amount of pension each year, or month, after retirement, which significantly improves the old-age insurance efficiency of the only child. According to statistics, if a couple starts to receive the award for their only child with an annual growth of 10 %, the sum of money will increase to 3,357 yuan after 14 years; and 21 years later, by the age of 60, the award may raise to 24,843 yuan, 207 yuan for each month, with an annual growth of 2,484 yuan, which can generally solve the problem of the old-age insurance. The Institute of Demography of Chinese Academy of Social Sciences, the Family Planning Commission of Sichuan Province, and the Sichuan Branch of the People's Insurance Company of China have jointly organized the reasoning for the theory and summary of practices, promoted the policy in Sichuan Province, and have significantly consolidated and improved the ratio of the only child and obtained good results. The policy performs even better in rural areas, where people mainly rely on their children for old-age insurance.

The second measure is to give priority to the only child and children born inside family planning in terms of preschool education, medical care, distribution of urban houses, employment of rural people in town enterprises, and the change from rural residence to urban residence. These policies of priority can increase the efficiency of the only child and children born inside the family planning and meanwhile save the cost and improve the quality compared to children born outside the family planning policy, which play important roles in the interest adjustment.

Secondly, appropriately raise the cost for children born outside the family planning policy and adopt some policies of posteriority.

Regarding the fine on parents of children born outside the family planning policy, it may not instill enough fear in people if the fine, for them, is very small; and some people may have no fear for it since they cannot afford the fine at all if the fine is too big. Then, the fine cannot play its role in inhibiting birth. Therefore, the key lies in a moderately priced fine and proper approach to its collection. The amount of the fine on parents of children born outside family planning shall vary in different regions due to their different economic, scientific, and technological levels. The "topic group of the solution to population problem" of the Institute of Demography of Chinese Academy of Social Sciences had proposed in a report in 1989 that the

annual fine amount for a child born outside the family planning should generally equal the annual per-capita income of the local area, and the provincial people's government should specifically regulate the corresponding standard based on the practical situation of the province while the family planning commission, as well as judicial, taxation, and civil administration departments, should be responsible for the organization and execution. The once-only fine shall be changed to the long-term fine with a period equal with the award to the only-child families, which means to collect the fine in an amount equal to annual per-capita income for a consecutive 14 years. In this way, it is, firstly, easier to collect the fine on children born outside the family planning and these families can afford the fine; and secondly, the parents of children born outside the family planning policy have to change their previous idea of "a once-off fine trading for a lifetime efficiency provided by children" but bear a price for 14 consecutive years, though the total amount of the long-term fine may not exceed the once-off fine. In addition, posteriority policies can be applied on children born outside the family planning policy in terms of preschool education, medical care, distribution of urban houses, employment of rural people in town enterprises, and the change from rural residence to urban residence, in order to increase the negative efficiency of these children and compare to the policies of priority for only child and children born within the family planning. A standard supporting management system shall be established accordingly.

Thirdly, gradually tend toward brainwork in distribution.

The irrational distribution between brain and physical work, such as "a hairdresser is no better than a doctor" and "a professor is no better than a vendor," impedes the technological progress and development of national economy, the transfer from the investment on quantity cost to quality cost of children, the decline of the birth rate, and improvement of the cultural quality of population. It is reported that the number of students in primary and secondary school has declined by tens of millions within a certain period, which is a serious problem for the population control. The fundamental solution is to make sure that the distribution for complicated labor equals to the sum of the distribution of simple labor through reform, try to tend toward brain work in distribution according to the situation of the development of the national economy, improve individuals and families' initiative to investment on intellect, and promote the economic efficiency of intellectual investment. Only can this lead people's preference to transfer from the pursuit of the quantity of children to the quality of children and enable the high-quality education for children.

Fourthly, establish the interest-adjustment mechanism for population control.

The fundamental goal of the above measures, including to effectively increase the efficiency of the only child and the children born inside the family planning, appropriately raise the cost for children born outside the family planning policy, adopt some policies of posteriority, and distribute more benefits to brain work, is to promote the guidance of interest, fundamentally change the current concept of "more children more happiness," gradually enable smaller cost and more interests for a family with fewer children and greater cost and fewer interests for a family with more children, and therefore lead people to voluntarily choose to give birth to fewer, but better, children and provide a better growth environment and education

based on the measurement of gain and loss of the family. The population control mechanism shall be reformed and adjusted accordingly to realize the transformation from a mechanism of mainly administrative management to a system of interest-adjustment management and coordination with relevant departments to carry out the regulations on award and penalty.

### ***1.3.2 Middle Level of the Population Control: Give Play to the Regulatory Role of the Community***

In addition to the micro factors such as the economic and cultural condition of families, the complicated change of the cost-efficiency of children under the socialist market economy is also restricted by its intensity of population control in the environment of families, including the street and neighborhood committee in urban towns and districts and the specific environment of villages in rural areas. However, owing to the reform and opening up and the establishment of the market economy in recent years, the population control at the middle level, which connects the macroscopic national population control and micro family population control, has been prejudiced in different degrees. Under the market economy, some local leaders lose the balance between the investment on population and material resources, and they attach less importance and less investment on population control; some places incorporate the family planning department in the health organization to streamline reform and thus weaken the status and role of the department; some special cadres of family planning departments start to pursue wealth as influenced by the market economy, which effected the stability of the group; and in some places, the administrative management-based methods do not meet with the market economy and are difficult to implement with lower effects than before. This situation indicates that the population control at the middle level shall adhere to the experiences of the successful management under the previous system, meanwhile upgrading and reforming the ideas, methods, and mechanisms and attempting to combine the administrative management, interest adjustment, and macro national population policy with the variation of the cost-efficiency of children. The community plays an important part in combining these factors.

Different definitions can be given to the concept of “community” from different perspectives, such as demography, sociology, economics, ethnology, geography, and religion. The author here defines community as the specific geographic area with similar properties in politics, culture, and social life based on common economic interests. The core of community is common interests, especially common economic interests, among members of the community, which produces the internal centripetal force and the code of conduct that is decided by the centripetal force. The denotation of community refers to the common interests of members of the community and the geographical area determined by the intensity of the centripetal force. The area may or may not consist within the administrative area. The formation of the community in a certain historical stage is closely related to the population, economics,

nations, culture, and social situation and is mainly decided by the level and structure of the social economic development. Currently, China's communities can be generally divided into three types: the traditional industry-based community, the modern industry-structure-based community, and the transitional industry-structure-based community. Members of the community mainly engage in traditional agricultural industry. With an underdeveloped productivity and low-income level, the closed or semi-closed community is transforming from a state of perpetual hunger to having adequate food and clothing or is in the primary level of adequate food and clothing. Owing to the low cost of the birth of marginal children, this kind of community is found in backward populations and economic development with a circulation of high birth rate, low labor productivity, and high birth rate. The second type of community, the modern industry-structure-based community, is featured with a rational structure of the primary, secondary, and tertiary industry, high level of specialized production and commercialization and high technological level, labor productivity, and per-capita income; this kind of community has developed a well-off status or is transiting from high-level well-off status to the prosperous status. Since the investment on population intellect can gain corresponding efficiency, the community has provided the condition for the transfer from the pursuit of the quantity cost to the quality cost and has stepped into the circulation of low birth rate, high labor productivity, and low birth rate in terms of the population and economic development. The third is the transitional industry-structure-based community, which means that the community is between the above two kinds of community and is transiting from the unique traditional agriculture to various industries, from manual production to semi-mechanized or mechanized production, and from low labor productivity and economic income to a high level. The population and economic development of the community is also transiting from the circulation of high birth rate, low labor productivity, and high birth rate to the circulation of low birth rate, high labor productivity, and low birth rate. Currently in China, the proportion of the traditional industry-based community is reducing, while the proportion of modern industry-structure-based community is increasing. At the same time, the transitional industry-structure-based communities account for the highest proportion in China. However, more importance shall be attached to the difference between rural and urban areas. Most cities have entered into the modern industry-structure-based communities or the later stage of transitional industry-structure-based communities, compared to rural areas, which are generally still the transitional industry-structure-based communities or the later stage of the traditional industry-based communities. Communities in cities or villages also vary to a great extent owing to the different economic development levels and perfection level of the market economy. These differences bring about a different environment for the cost-efficiency of children and therefore lead to the significant difference in birth rate between rural and urban areas and between economically developed and underdeveloped areas. According to the total fertility rate (TFR) of 1989, based on the 10 % sample investigation in the population census of 1990, the lowest fertility rate appeared in Beijing (1.33), followed by Shanghai (1.34), Zhejiang (1.40), Liaoning (1.51), and Tianjin (1.66), which were all areas of comparatively more developed economy,

higher per-capita income, and more significant results of reform and opening up. By comparison, comparatively more underdeveloped areas of lower per-capita incomes and slower reform and opening up, mainly the northwest and northeast of China, shared a higher TFR. This situation indicates that the communities, as the main body for population control in the middle level, function better under the socialist market economy. Some local practices have provided the experiences on the management of population control by giving play to the role of communities from various aspects, including the “experimental area for the comprehensive development of population and communities” held by Hainan special economic zone, the “southern Jiangsu model” of harmonious development of population and economy based on the development of the commodity economy and change of the community environment, the “cooperative of fewer births and rapid prosperity” held in Sheyang County of Yancheng City and other cities in northern Jiangsu, the “project of developing production, raising life standard and controlling birth” in Jilin, and the “key households for family planning” held in Liaoning for many years. China shall implement the following in order to fulfill the goal of the socialist market economy: summarize the above experiences in a spirit of reform, connect the macro population control of the country and individuals’ interest selection on births, and establish, cultivate, and develop the population control mechanism at the middle level with the community as the main link.

Firstly, develop the community economy to fundamentally change the objective conditions for the cost-efficiency of children.

As analyzed above, families’ childbirth and the quantity of children are ultimately restricted by the cost-efficiency of children, which is closely related to the family economy. However, the development of the family economy relies not only on the human, material, and financial resources of the family but also on the external environment of the family, especially the specific community environment. Though the families within the same community may vary with each other in terms of the economic conditions, generally, most community members belong to the same economic type and share similar economic situations, life quality and the cost and efficiency of marginal children, so the birth rate is similar within the community. It is commonly seen that the fertility rate is inversely proportional to the economic development level, according to the comparison of the fertility rates in communities of different economic levels. Therefore, it is necessary to develop the community economy and improve the scientific, technological, and cultural level of community members, in order to create the objective basis and external conditions for the population control and change of the fertility rate of the community. In southern Jiangsu, an area with a developed economy-, science-, and technology-oriented prosperity has come into fashion. Surplus agricultural labors can only enter the township enterprises with a junior middle school education or above, which increase the quality cost for children. After the development of the economy and social insurance, including the old-age insurance, the old-age insurance efficiency of marginal children has significantly declined. The increase of the cost and decline of efficiency will directly lead to the drop of the fertility rate by a large margin and create the favorable circulation of “low birth rate, high labor productivity, and low birth rate” in the area.

On one hand, the development of the community economy will stimulate the development of the family economy in the community and further lower the fertility rate based on the change of the cost-efficiency of children; and on the other hand, the development of community economy will directly influence on cost-efficiency of children by absorbing the qualified labors and developing social insurance, thus lowering the fertility rate. If its role is still considered unobvious in this aspect, along with the development of reform and opening up and the perfection of the market economy, the social economy will develop to a higher level and play an increasingly important role in population control.

Secondly, adopt necessary measures for economic adjustment and lower the birth rate by changing the cost-efficiency of children.

Owing to the common economic interests of the community, the childbirth rate of the families in the community does not only relate to families but also relate to the interests of other members. Fewer births, better births, and better upbringing also contribute to the community, and birth outside the family planning will damage other members' interests, which provides the foundation for the government to apply measures for awards and penalties and the policies to maintain the coordinated development of population, resources, environment, and economy of the community and further promote the role of the community in assisting political organizations on the policies of family planning. Meanwhile, based on the economically comprehensive development of the community, explore the new way for the adjustment of the community market according to the cost-efficiency of children, in order to cooperate with the macro reform of the economic system. For example, adopt some preferential policies for children born inside the family planning in terms of talent cultivation, recommendation to township enterprises, and establishment of economic entities; and give priority to aiding families of an only child and children born inside the family planning and enable them to be the first to prosper when they cast off poverty and local agriculture, industry, and trade are developed by attracting foreign capitals, technologies, and talents. Sheyang County of Jiangsu Province has set a good model in this aspect. It has given full play to the positive role of the community in the mobilization and organization of people, adjustments on policies and guidance of interests, and establishment of the "cooperative of fewer births and rapid prosperity" based on mature conditions, so as to combine the population control with the construction of well-off and prosperous society and therefore to make the change of cost-efficiency of children favorable for the population control.

Thirdly, develop the community culture and conduct education to change people's outlook on childbirth.

As an obvious characteristic, communities are small cultural circles and some of them even feature independent beliefs, traditions, religions, and birth conceptions. Along with the development of community economy, tangible and intangible cultural education of the community also develops rapidly. Many rural communities establish cultural night schools, vocational schools, technical training classes, etc. These measures that aim to improve the cultural quality of population will lower the fertility rate directly, and, in addition, these measures will enable people to acquire more knowledge and the basic state policy of family planning, as well as technologies on



fertility and contraception, which plays a positive role in the population control within the community. Demonstrated by local practices, this kind of spontaneous education will significantly improve the awareness of population, change the birth concept, and improve contraception technology if the correct guidance and organization are followed. Currently, the good communities generally incorporate the population control and improvement of population quality in the economic, cultural, scientific, and technological development plan; give full play to the role of communities in changing people's birth concept; and facilitate the transformation from the birth culture of carrying on the family line via sons and "the more sons, the more blessings" to the birth culture of "equality between the sexes and fewer births and better postnatal care."

Fourthly, develop the community service and facilitate the implementation of the national policy on population control.

Since the community is not, in itself, a governmental organization, its role in population control at the middle level depends on the cohesion and joint efforts by the community members. In addition, the community also has its own code of conduct and tangible or intangible binding force, which are naturally related to the grassroots political organization under China's current realities. Therefore, the community that connects the macro national population control and the families' birth selection can function in various aspects. The "key households for family planning" can be considered as the smallest communities, which are very unique in terms of the small, rapid, and flexible community service. This kind of community can pointedly provide the heads of key households with consultation services, including the population knowledge, birth and contraception technologies, fetus education, and preschool education, and provide mutual child care for the only child and children born inside the family planning, enable mutual exchange in child birth and living, and effectively reduce the cost for raising a child and increase the efficiency. Some communities have started elderly homes, old-age service centers, and living service centers to solve the problems of the elderly from families of no or few children, which have practically solved the most important problem of the population control, prepared for the coming wave of population aging, and combined the population control with the improvement of population quality and adjustment of the population structure.

### ***1.3.3 Macroscopic Population Control: Improve the Comprehensive Control and Regulation Capacity***

By the end of 1992, China's population size had reached approximately 1.2 billion, including 1.17171 billion people from the 30 provinces, autonomous regions, and inland municipalities. With an adult-type population structure, China's population will maintain rapid growth, reach 1.3 billion by the end of the twentieth century, increase to 1.6 billion in the mid twenty-first century, and realize zero development afterward. Controlling population growth is still a hazardous task. China has made

great achievements in population control since the 1970s, mainly as a result of the implementation of the family planning policy. Through many years of practice, the policy clearly states that a couple can only give birth to one child, except the special circumstances of state cadres, employees, and urban residents as approved; some people facing genuine difficulties can have a second child after an interval of several years but can never have a third child; and it also advocates to carry out the family planning on national minorities, but uniformity shall not be imposed all over the country, etc. As a country of meticulous organization of the Party, government, workers, youths, women, and other social groups, China is strict in the bounds of discipline, has vigorously conducted propaganda and education, strengthened the leadership of family planning at all levels, specifically implemented means of contraception, and finally realized a constant and significant decline of fertility rate in an economically underdeveloped country. However, the above birth policy is neither permanent nor temporary but is a periodical policy for a long term to control the birth rate of this generation. The policy shall be steadily and carefully executed. From the perspective of the macroscopic national population control, in order to completely implement the current policies, China shall summarize and apply the experiences of the previous success, such as the emphasis by leaders or the execution of the management responsibility system of program objectives; mainly rely on propaganda and education, pregnancy, and regular work; improve the quality of cadres; attach importance to the construction of the administrative teams; promote technological progress; enhance the infrastructure construction; and spare no effort to implement the macroscopic national population control in families. On the other hand, the government shall also be more concerned with the diversified influential factors and significant growth role of the economic factor, which needs the most attention in the population control under market economy. It will also be necessary to inquire upon the variation of the roles of factors that influence the fertility rate under reform and opening up and market economy, to seek for reform to enable the macro population control mechanism to meet the interest-adjustment-based micropopulation control and the community-regulation-based population control at the middle level, and to improve the comprehensive capacity of control and regulation. The reform mainly includes the following aspects:

Firstly, improve the macro comprehensive capacity of control and regulation on population policies and management measures.

As mentioned above, special attention shall be paid to the perfection and the application of the interest guidance system for population control under the market economy. Therefore, firstly, execute the award for the only child and punishment for children born outside the family planning in a proper amount in order to change the cost-efficiency of children to lower the fertility rate. Secondly, coordinate the population policies and relevant measures to facilitate the population control. Both methods require the improvement of the comprehensive capacity of control and regulation of the state and governments at all levels; otherwise the work will be doubled to accomplish the goal. For example, in order to raise the efficiency of a couple's only child, governments at all levels generally have provided that the family of an only child and the family of more than one child share same rights on

urban housing and distribution of contracted rural fields but some places and units section distribution by person, which objectively encourages the birth of more children. For another example, the department of family planning vigorously promotes the view of “boys and girls being equal,” but sex discrimination still exists in employment and work distribution in some places, which stimulates people’s desire to give birth to boys. The preferential policies for an only child and children born inside the family planning on preschool education, employment, and rural residents becoming urban residents are merely a document. If the current situation continues, the more childbirth will obviously gain more economic efficiencies, which will harm the population control. Therefore, relevant policies and measures shall be changed to promote fewer and better births. Obviously, the goal can only be achieved when the government promotes its macro comprehensive capacity of control and regulation on population control and rationalize the relations among various aspects.

Secondly, enhance the macro comprehensive capacity of control and regulation on the harmonious development and mutual facilitation of different aspects in the population development strategy.

The strategic principle for the overall solution to the problem of Chinese population consists of three aspects: controlling the size of the population; improving the physical and cultural quality of the population; and adjusting the age and sex structure, rural and urban structure, and regional distribution structure of the population. Instead of being parallel or isolated, the three aspects of different importance are related to and constrained by each other. The major contradiction at present, and in a comparatively long period in the future, will be the control of the size of population. If the size of population has been effectively controlled, with a certain national income and ratio between accumulation and consumption, the cost saved by giving birth to fewer children can be applied to the investment on the health and education of children and therefore children’s physical and cultural quality can be improved. The decline of the fertility rate and number of childbirth is the only method to adjust the age and sex structure of population in a normal state. This is the only road to transform the adult-type to the aged-type population structure and realize the steady population. The differences of the population control and fertility rate between rural and urban areas and among different regions exert an evident influence on changing the rural and urban structure and the regional distribution structure of the population, when the population migration shall be taken into consideration. Therefore, the control of the population size relates to the population size in the future, meanwhile relating to the variation of population quality and structure. Potential danger may be hidden if the variation of the latter two aspects is ignored, such as the sex ratio of newborn babies and the aging of the age structure. The control of population size also requires a certain capacity of macro control and regulation in terms of time and space.

The improvement of the population quality and adjustment of population structure also greatly influences the control of population size. Regarding the TFR of women of childbearing age with differing education levels in 1991, TFR of women with university education was 1.2, TRF of women with a senior high school education (including the technical secondary school) was 1.5, 2.1 for junior middle school education, 2.5 for primary school, and 3.0 for illiteracy, while the average

level was 2.3. A big difference is shown in the statistics. In this sense, the improvement of population quality will lower the fertility rate. The difference of TFR between rural and urban areas also indicates that the TFR in urban areas is far lower than the rural areas. The urbanization of population will lower the fertility rate and also promote the cultural quality of population. It can be seen that the improvement of the physical and cultural quality of population and the adjustment of the age and sex structure, rural and urban structure, and regional distribution structure of population are necessary for the overall solution to the population problem of China; they also form an integral part of the overall population strategy and play an important role in the control of the size of population. Family planning is an important, but not unique, method to control the size of population. The basic standing point for the reform and improvement of the macro capacity of control and regulation on population control lies in enhancing the links among and the integration of the three aspects of the population development strategy in order to facilitate each other.

Thirdly, improve the macro comprehensive capacity of control and regulation of relevant sectors for population management.

Currently, the Family Planning Commissions of the state and governments at all levels function as the leading department for population control, but the management on birth, including marriage, maternal and child care, and population migration and flow, is controlled by other governmental departments, leading to the bifurcate administration and inconsistency of some measures. To increase the macro capacity of control and regulation on population control, enhancing the coordination among departments; amalgamating some departments based on the principle of simplification, high efficiency, and uniformity; and improving the social efficiency of population control are required.

Fourthly, improve the macro comprehensive capacity of control and regulation on the scientific research of population and internal and external propaganda.

The population control in China is closely related to the correction of ideas and theories. After reform and opening up, the scientific study of population attained unprecedented development. However, due to the lack of national overall planning and guidance, the research organizations, subjects, results, and publication have seriously repeated, which incurred great waste of human, material, and financial strength and also inhibited further thorough research. Though propaganda on population knowledge, policies, and contraception has obtained great results, a lot of work is required to enable foreign allies to understand the origin and course of China's population control, provide a basis for anyone supporting China's policy to make presentations on international forums, eliminate the doubts for anyone unaware of the truth, and prevent individuals from attacking China with the excuse of "human rights." China needs to conduct a national overall planning and improve the government's macro capacity of control and regulation in order to reduce the repeated research on population science, improve the quality of the research results, and complete the internal and external propaganda in an all-around way.

How is the comprehensive capacity of control and regulation on macro population control to be improved? The author believes that, in addition to the basic consensus as the ideological basis, a comprehensive department of good coordination that

mainly aims to control the population size and meanwhile puts forth efforts to improve the population quality and adjust the population structure, according to the current situation of China, i.e., the Population Commission directly under the State Department. This idea has been advocated for more than a decade. Under the new situation after reform and opening up, it is quite urgent and qualified to establish the population commission at the central government and local governments of all levels, as well as corresponding management system, which will facilitate the government's population control and the transformation of the population control mechanism under socialist market economy. In order to improve the macro capacity of control and regulation on the national population control, give full play to the role of community in the population control at the middle level, enhance the interest guide over the childbirth in families, and integrate the population control at the macro, middle, and microlevel, it is required to seize the opportunity of current reform and take a new step forward toward the reform of population management.

## **1.4 China's Population Development Trend in the Twenty-First Century and Research on the Decision Selection<sup>11</sup>**

Obvious variations and development trends of China's population can be seen at the very end of the twentieth century. In order to realize the future population goal, build socialism with Chinese characteristics, enhance economic and social development, and improve resources and environment, it is of utmost importance to understand and make use of the trends, conduct in-depth analysis, and promote advantages and eliminate disadvantages.

### ***1.4.1 Overall Population Variation Trend and the Selection on Birth Control Policies***

According to the sample investigation on 1.028‰ of China's population by the National Bureau of Statistics in 1996, population aged 0–14 years accounts for 25.9 % of the total population, compared to the population aged above 65 that takes up 6.9 % of the total population. The child-to-elderly ratio is 0.268,<sup>12</sup> which indicates that China is transforming from the late stage of adult-type age structure to the aged-type, and the population will continue to grow. Based on the domestic and overseas population estimation, China's population may reach 1.3 billion by the end of twentieth century, 1.4 billion by 2010, and approximately 1.6 billion by 2050

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<sup>11</sup> This article was originally published on *Chinese Journal of Population Science*, 1st issue, 1998.

<sup>12</sup> Data source: *Statistical Yearbook of China 1997*, China Statistical Publishing House, 1997, P76.

when the zero growth will be realized. Afterward, the population will slowly decline. Regarding the population goal after the zero growth has been attained, the author believes that many scholars, including the author, have argued the optimum population for reference in terms of the resources and economic development. However, further research is needed to improve more scientific, reasonable, and practical planning on optimum population that fits the three-stage development strategy.

A majority part of estimation on the population variation in the mid twenty-first century believed that the total fertility rate (TFR)<sup>13</sup> would decline in the 1990s from about 2.0, rebound in the twenty-first century, and rapidly achieve and maintain a rate of 2.10. For example, the United Nations (UN) predicted the TFR=6.11 from 1950 to 1955, 4.76 from 1970 to 1975, 1.95 from 1990 to 2000, 1.99 from 2000 to 2010, and 2.10 from 2010 to 2050.<sup>14</sup>

As it turned out, the TFR between 1990 and 1996 (based on arithmetic mean) was 1.91, a bit lower than the estimation of the UN. The current problem lies in whether China's TFR has dropped to the lowest level by 2000 and whether the rate will or will need to rise later. After the Central Committee of the Communist Party of China (CPC) issued the "open letter" to all CPC members and members of the Communist Youth League, the proportion of only-child families has constantly increased. According to the sample investigation on 1 % of the population in 1995, 67 % of women of childbearing age gave birth to only one child, 25.6 % gave birth to two children, and 7.4 % gave birth to three children or more between October 1, 1994 and September 30, 1995.<sup>15</sup> In 1996, women of childbearing age gave birth to 1.42 children on average.<sup>16</sup> It can be seen that only one child per couple has been generally realized in urban areas, but not in rural areas. The "open letter" had emphasized that "it is generally advocated that a couple only gives birth to one child in the recent two or three decades." The author agrees that the birth rate of a generation can be well controlled if the goal is achieved, which will significantly reduce the number of parents in the future and therefore effectively control the population growth from the perspective of population reproduction. That is also the reason why the author agrees that if either the man or the woman as the parents is the only child of their families, they can give birth to two children. The *Ordinances of Family Planning* of various provinces, autonomous regions, and municipalities directly under the central government now provide the same. The advocacy of the only child of a couple is not a temporary policy, because it cannot solve the fundamental problem in 3 or 5 years, nor is it a permanent policy, because society will fail to bear the age structure and the development will be seriously affected if the policy is applied for more than five or six decades. The "only child" policy mainly aims to solve the fertility rate problem of a single generation and effectively control the population

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<sup>13</sup>Total Fertility Rate refers to the age-specific fertility rate of women as well as the total number of children according to the age-specific fertility rate of a woman (or a group of women).

<sup>14</sup>Data source: United Nations [26] (median prediction).

<sup>15</sup>Data source: Sample Investigation on 1 % of National Population (1995), China Statistical Publishing House, 1997, P76.

<sup>16</sup>Liu Hong, *Statistical Yearbook of China 1997*, China Statistical Publishing House, 1997, P84.

growth at the lowest cost. Therefore, it is well founded and reasonable that most population estimation considers the TFR higher than 2.10 after 2010. However, further studies are required on whether the TFR shall be raised to 2.10 by 2010. The author thinks that, firstly, it is necessary to adhere to the reasonable provision that it is allowed to give birth to two children, if either the man or the woman as the parents is the only child of their own families. Secondly, any child born outside the family planning policy shall abide by the only-child policy after he or she grows up, to contribute to the birth control of a generation, no matter the time period, which is necessary for the population control and is fair to all Chinese residents. If so, it is impossible for the TFR to rise to 2.10 by 2010, which may be similar with the current level, under 2.00. Based on this, the zero growth may be realized prior to 2010 and the population peak may be lower than 1.6 billion. As an important problem that relates to the population variation in the twenty-first century and the completion of the goal of per-capita income in the "three-stage development strategy," further studies and the selection on the birth control are required.

#### ***1.4.2 The Improvement Trend and Distribution of the Population Cultural Quality and the Selection of the Education Reform Decisions***

The cultural quality of the population has been constantly improving since the establishment of the People's Republic of China in 1949. The total population cultural quality index, i.e., the average education years of the population aged above 12 years, has improved from 2.25 in 1964, to 4.21 in 1982, 5.18 in 1990, and 5.52 in 1995.<sup>17</sup> However, the current level is still not high enough. The government has set down the nationwide 9-year compulsory education plan and eradication of illiteracy among young and middle-aged people plan for 2000; the cultural quality is expected to remain at a sharp improvement in the twenty-first century. Without a doubt, it is very necessary to increase the investment on education, which is also a hot topic among representatives in the National People's Congress and Chinese People's Political Consultative Conference (CPPCC) meeting. However, it is constrained by the increase of the national financial income. It is favorable to start the Hope Project and make donations toward education, but these measures cannot fundamentally solve the problem. The author believes that education is the basis for the strategy of invigorating the country through science, technology, and education. Importance shall be attached to the following key points in order to develop education and fundamentally solve the problem.

Firstly, establish the distribution mechanism that stimulates people's desire for education. Previously, China had suffered a serious reduction of primary and middle

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<sup>17</sup> It is calculated based on the population census in 1964, 1982, and 1990 and the sample investigation of 1 % population in 1995. See the calculation method in the *Tian Xueyuan's Collected Works*, China Economic Publishing House, P222–223.

**Table 1.1** Average salaries for employees of different educational backgrounds in 1994 (unit: yuan)

	Enterprises	Government agencies
Master's degree or above	9,538	6,138
University	7,782	6,048
Junior college	6,883	5,711
Vocational secondary school, senior high school, and technical school	6,504	5,721
Junior middle school or below	6,566	6,661

Data source: *Statistical Yearbook of China 1996*, P129

school students, due to the economic difficulties of their families, the far distance between their homes and schools or the inconvenient traffic in mountain areas, and unwillingness to provide education to girls, as they were deemed inferior. However, the investigations at various regions indicate that the main reason is that many primary and middle school students are put into the commercial market, as their parents believe that teachers are “living no better than vendors” and “doctors are living worse than hairdressers.” In reality, the market economy brings about the idea of that it is “useless to go to school” and “it pays too much to go to school.” What is the real situation? Table 1.1 lists the result of an investigation on 65,912 people from enterprises and 55,509 people from government agencies.

As shown by Table 1.1, above the education of vocational secondary school, senior high school, and technical school, the salary is generally proportional to the education background, except the slight inconsistency in the relation between the education background of junior college and the vocational secondary school, senior high school, and technical school in government agencies, which does not constitute an inverse proportion. However, based on the comparison between the education of junior middle school or below and vocational secondary school, senior high school, and technical school, the salary is seriously inversely proportional to education, especially in government agencies. The employees with a master's degree or above only earn 2,972 yuan more in enterprises than employees of junior middle school or below and even earn 523 yuan less than the latter in government agencies. The potential inverse proportion between salaries and educational background in enterprises and the dominant inverse proportion in government agencies significantly influence the cost-efficiency of children. It exerts great impact on families' initiative to conduct intellectual investment and the improvement of the cultural quality of population.

The selection of the decisions on reform is to adhere to gradually changing the unfair distribution between brain and physical work and the inverse proportion between salaries and education and ensure corresponding and added efficiency for individual and families' investment on the education, science, and culture for children. According to Karl Marx's labor value theory, the more complicated brain work creates a greater value and therefore shall gain more based on the law of



distribution according to work. Even in light of the utility theory of value in western economics, labors of higher cultural quality create more wealth and shall correspondingly earn more. Also, the reform that aims to pursue the cost-efficiency balance of the intellectual investment will not only enhance families' initiative to conduct intellectual investment on children and solve the problem of motive force but also improve the quality cost of children and reduce the quantity cost, which will facilitate the decline of the fertility rate. The transfer from the quantity cost to quality cost of children is the driving force for the transformation from the circulation of "high fertility rate – low cultural quality of population – low labor productivity – high fertility rate" to the circulation of "low fertility rate – high cultural quality of population – high labor productivity – low fertility rate," as well as the fundamental reform that pursues the integration of population, science and technology, economic and social development, and the virtuous cycle among these factors.

Secondly, promote the reform to improve the labor productivity of education. Currently, each teacher at institutions of higher learning around the world is responsible for 14 students on average, compared to 7.5 students of Chinese teachers, which illustrates the low labor productivity of China's education. Though many factors contribute to this situation, such as the insufficient teaching facilities and backward teaching methods, the main reason lies in that schools are not established upon the principle of specialization and the idea that "a school starts a society"<sup>18</sup> to some degree. The author has traveled to many famous universities in developed countries for academic exchange and visits, including the United States, Canada, the United Kingdom, France, Japan, and Australia. Many of these schools, covering areas and facilities similar to Peking University and Tsinghua University, hold about 30,000–50,000 students, or even 70,000 or 80,000 students, several times more than Chinese universities. Their labor capacity on education is quite high. The most important aspect for the high productivity is the idea that "the society supports the school," which means that the school concentrates on teaching, while society supports the administration and logistics of the school. This is quite different from China, where leaders and managers of the school will also exert great efforts on the administrative management over the school, even including the logistics support such as the accommodations for students, teachers, and staff, in addition to the teaching management. In China, many believe in the idea that "a school starts a society." The school is a mini-society itself. Though many changes shall take place in the education reform, the author believes that the primary reform is to transfer from "a school starts a society" to "the society supports the school." Currently, many schools have achieved some favorable results in socializing the living service, such as the dining hall, store, restroom, and barbershop and have begun to put the accommodation for teachers and students to the market. This demonstrates that the reform of the idea that "the society supports the school" is the focus and difficulty of the education reform, but it can be vigorously enhanced.

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<sup>18</sup>Translators note: It refers that many schools, especially those of higher learning, start their own hospitals, affiliated kindergartens and primary schools, etc. with the funds on education.

**Table 1.2** Prediction over the variation of the production age population (15–59 years old)

Year	Solution 1			Solution 2		
	Million people	Proportion in total population (%)	Dependency ratio (%)	Million people	Proportion in total population (%)	Dependency ratio (%)
1995	776.75	63.96	56.35	778.07	63.7	56.98
2000	822.62	64.29	55.55	832.41	64.8	54.32
2010	925.72	67.14	48.94	926.06	66.7	49.93
2020	940.70	63.45	57.60	949.38	63.8	56.74
2030	913.85	59.45	68.21	921.59	59.3	68.63

### 1.4.3 Growth Trend of the Production Age Population and the Selection of Decisions on Labor Employment

Based on the current age structure of population and the future goal of the birth control, the author's team has conducted the medium prediction jointly with the Department of Economic and Social Information and Policy Analysis and the Population Division of UN. The prediction over the variation trend of the population of production age is presented in Table 1.2.<sup>19</sup>

As shown in Table 1.2, the absolute quantity of the population of the production age, from 15 to 59, will constantly grow by 2020, which will grow by 163.95 million people compared to 1995 in Solution 1 and grow by 171.31 million people in Solution 2, which are fairly close in number. Its proportion will continue to grow until 2010, when the dependency ratio in both solutions will decline to under 50 %. This period can be called the “golden age” [27] for the population age structure that facilitates economic development, owing to the light social burden. After 2010, the proportion of the population of the production age in total population will decline, while the dependency ratio will rise, which reflects the adverse effect of the constant growth of the dependency ratio. In order to face the rise of the proportion and absolute quantity of the population of production age in the recent couple decades and the increase of unemployment due to the deepening system reform, more importance shall be attached to the following aspects in the selection of the decisions on the labor employment strategy.

Firstly, confirm a rational strategy for economic and technological structure and improve the overall employment capacity. Faced with the life science-led revolution of new technology in the twenty-first century, China shall firmly and vigorously develop emerging technologies, transform traditional industries with new technologies, and develop capital and technology-intensive industries, in order to implement the strategy of invigorating the country through science, technology, and education.

<sup>19</sup>Data source: United Nations, *World Population Prospects the 1994 version*, United Nations Publications (Sales No. E95XIII.16), New York, 1995.

However, the high- and new-tech industries can absorb only a small proportion of total employment, whereas more advanced and intermediate-tech industries take up a larger proportion, and the semi-mechanized industries and manual work share an even greater proportion of employment. This will constitute the basic pattern of employment in the first decades of the twenty-first century. The "pyramid" of the economic and technological employment structure, on one hand, requires developing modern economic technologies and absorbing the employment of the population of corresponding production age and, on the other hand, requires developing the industry integrated with capital, technology, and labor-intensive industries, integrated with labor- and capital-intensive industries or integrated with labor- and technological-intensive industries, to absorb more employees. Different regions shall vary in the degree of importance attached to the three different intensive types, and uniformity shall not be imposed even within the same region. Economic and technological progress shall be promoted step-by-step and level-by-level. The process will improve but not inhibit the development of the overall employment capacity.

Secondly, improve the employment efficiency and gradually change the content of the employment rate from the proportion of employees among the population of production age and the proportion among the total population. The employment rate is a direct indicator for measuring the utility labor resources. The high employment rate in the 1950s, 1960s, and 1970s was often publicized as the superiority of China's system, but it had hidden the conflict between the high employment rate and low labor productivity. The employment of low efficiency is unfavorable for the improvement and accumulation of employment methods; it hides the situation of unemployment and aggravates the conflict. After reform and opening up, China explored more employment methods, provided flexible and various jobs, and solved or released the accumulated contradiction to a large extent. However, the low efficiency of employment has constantly influenced the population and economic development and kept the increase of employment methods falling behind the growth of labors. Therefore, the relation between the employment rate and employment efficiency shall be correctly handled for rational employment. Theoretically, it requires full employment based on the constant improvement of the employment efficiency. Regarding the improvement of the employment rate, which kind of employment rate shall be improved matters greatly, because different employment rates present different factors, such as the population age structure, economic development level, technical structure, and essence of employment. Currently, developed countries with a high aging group of the population age structure enjoy a high proportion of the production age and sufficient employment methods, so their employment rate among the total population is generally high, compared to lower total population employment rate in developing countries. Nevertheless, regarding the production age employment rate based on the proportion of employees among the population of production age, developed countries are generally lower in benefit level of their high proportion of students of universities and middle school, and developing countries share a higher rate. Developed and developing countries vary in the two kinds of employment rate by about 10 %, which shows great influence.

China's two types of employment rates are currently between developing and developed countries. Its core task is to expand the proportion of the students of universities and middle schools in the population of production age, in order to carry out the transition to developed countries. This measure will reduce the pressure exerted by labors; help the realization of the strategy of invigorating the country through science, technology, and education; and finally create more methods and conditions for the expansion of employment.

Thirdly, deepen the enterprise reform and improve the labor market. Along with the deepening reform and opening up, the pressing problem in the near future will be the increase of unemployment in state-owned enterprises and the rise of the unemployment rate in urban population. No doubt, China should "not stop eating for fear of choking" and should carry on with the reform. The only way out is to adhere to the separation of government administration and enterprise management and regard the enterprises as real market bodies. According to the law of developing the superior and weeding out the inferior in the market economy, the "superior" enterprises can help the solution to population employment, while the "inferior" enterprises put the laid-off staff to the market. Therefore, it is necessary and possible to improve and perfect the labor market. The labor market shall be established as a standardized market, the same with the commodity, capital, technology, and information markets. In addition, kinds of effective labor markets that fit the laid-off staff shall be built accordingly. Beijing, Shanghai, and some other cities have created a "trust" system, where the laid-off staff are separate from their original enterprises, attend the management organization entrusted by the industry, participate in reemployment training, and then take on a new job. This model has achieved great results in practice. The development of the labor market shall improve the capacity of the laid-off staff and create conditions for their reemployment instead of simply pushing them to the market.

Fourthly, choose merger and bankruptcy appropriately and facilitate the development of unemployment insurance. To encourage merger and reduce bankruptcy as a result of the depression of many state-owned large and medium-sized enterprises will surely significantly reduce social unemployment. However, the merger is conditional based on economic laws. In addition, whether the enterprise can revive depends on the practical operation. Some mergers show bad performance, while some enterprises in the merger jointly go bankrupt at the end. A merger is not a versatile solution. The author considers no social insurance for unemployment more terrible than high unemployment itself. Some developed countries in Europe and the United States currently suffer high unemployment, even up to 10 %, but they face no serious problem on public order owing to the high unemployment insurance premium. It is better for some enterprises of serious loss that live by loans to stop lingering, go bankrupt, and release unemployment funds for their staff. It is possible to learn from the pension funds of enterprises and set up an insurance fund for the unemployed jointly invested by the government, enterprise, and employee according to the total amount of enterprise salaries and the number of staff members, in order to improve enterprises and employees' ability to withstand risks.

**Table 1.3** Total amount of pension for retirees from 1978 to 1996

Year	Number of people (million)		Total amount of pension (billion)	
	Total	Including state-owned units	Total	Including state-owned units
1978	3.14	2.84	1.73	1.63
1980	8.16	6.38	5.04	4.34
1985	16.37	11.65	14.98	11.92
1990	23.01	17.42	47.24	38.24
1996	32.12	25.15	181.78	153.79

Data source: *Statistical Yearbook of China 1997*, P749–750

### ***1.4.4 Trend of Population Aging and Selection of Policies on the Reform of Old-Age Security***

Aging of the population age structure also constitutes a major trend of China's population development and will reach its peak by 2030 or 2040. Compared to major developed countries of the world, China is experiencing increased aging of a higher level, which forms an evident "time difference" against the underdeveloped economy. Without the "time difference," China's population and economic development would be similar to current developed countries and then the government should learn from their fundamental methods to build an all-around social security. However, with this "time difference," though China shall still refer to the beneficial experiences of developed countries, China's frame of the old-age insurance system is quite different from other countries' and will be established as a model of oriental-structure old-age insurance. This model can be concluded as actively developing social support, continuing to advocate the children who support their families, properly organizing some elderly to work and support themselves, and applying an old-age insurance system integrated with social, family, and self-support.

#### **1.4.4.1 Actively Develop Social Support and Seek for Reform**

The People's Republic of China has established the retirement pension system for staff after its foundation. The pension has increased year by year, even faster in the recent two decades (see Table 1.3).

What is the future of the development trend? According to prediction, the number of retirees and total amount of pension in 2000 will double the figure of the mid-1990s, while the number in 2020 will increase several times and become an unbearable burden for the national finance and enterprises. The coverage of the current pension is very narrow, mainly including state-owned units, and cannot adapt to the rapid development of the population aging. The only approach is reform, aiming to establish the old-age insurance funds jointly invested by labors

and enterprises or organizations. In 1991, the State Council issued the Decisions on Reforming the Enterprise Old-Age Insurance System and started to combine the basic old-age pension, enterprise old-age pension, and old-age pension of staff savings. The basic old-age pension is legally effective. Units and labors must participate in the basic old-age pension organized by the government, timely pay the old-age insurance, and establish the old-age pension funds and personal accounts. The enterprise old-age pension is voluntarily setup by the enterprise according to its operation status, and its pension will not exceed 15 % of staff's salaries. The old-age pension of staff savings is a kind of commercial insurance as a result of a labor's private behavior. The active development of social support mainly refers to the development of the basic old-age pension and old-age pension of enterprises under sound operation. Currently, most state-owned large and medium-sized enterprises suffer a depression; they can hardly afford to pay their workers' salaries, let alone pay the basic old-age pension. The enterprise old-age pension shall be incorporated in enterprise reform. Enterprises shall pay for the pension and establish the personal account for staff. The old-age pension of staff savings shall be actively promoted in rural areas. Large township enterprises shall also establish corresponding old-age insurance system according to the regulations of the enterprise old-age pension.

#### **1.4.4.2 Advocate Family Support and Develop Community Service**

Due to the "time difference" between China's population aging and economic development, it is impossible to build an all-around social security system, so the family support from children shall still be advocated. Chinese nations are featured with the fine traditions of respecting and supporting the old, making family support more possible than other countries. In these times, only 40 % of elderly couples and single elderly people live alone, while 60 % are living with children and grandchildren. The family support has taken up a certain proportion. The family support satisfies both the living needs and spiritual needs of the elderly.

However, the traditional attitude toward the elderly support is unprecedentedly challenged by the market economy and pan-commodity idea. Cases of children refusing to support parents have greatly increased. Under these circumstances, steps need to be taken: Firstly, enhance the propaganda and education and incorporate the respect to and support for the elderly in the new social moral conduct; secondly, improve the legal system and punish anyone who abandons, abuses, or refuses to support the elderly according to laws; and thirdly, develop the community service and give full play to the community's role in supporting and serving the elderly as a big family. A batch of community models has come into being in recent years, which shall be summarized and promoted.

Organize the elderly to support themselves and develop the human resources from the elderly. The ideas on the values of the aged in western and eastern culture are quite different in the attitude toward the reemployment of the elderly. Generally, the aged in the western world are not willing to work again after retirement, preferring to enjoy leisure activities and travel. Contrarily, the elderly in the east, including Japan and China, still want to engage in any work within their power, or

even until their physical conditions prevent them. The primary goal of the Chinese elderly is to meet the needs for survival, which has been demonstrated by many investigations conducted by the Institute of Demography and Development of the Chinese Academy of Social Sciences. These investigations also indicate that the reemployment of the elderly illustrates they are useful, is beneficial to their physical and psychological health, and meets the demands of development and pleasure. The wage rate has changed along with the economic development and technological progress, so the reemployment of the elderly plays an important part in preventing the poverty of the elderly.

From the a general social point of view, the comparatively young and healthy elderly with special skills are precious human resources, which shall be well developed and utilized to create more wealth for the society. It should be noted that due to the surplus population of the production age in China, the elderly shall try to avoid competing with the youths in the labor market and shall become involved in industries and departments that are suitable for the physical and psychological characteristics of the elderly, such as the tertiary industry including the park lot service attendant, security guard, environmental sanitation, commerce, restaurant service, and individual service.

#### ***1.4.5 Trend of Population Urbanization and the Selection of Decisions on the Transfer of the Surplus Rural Labors***

The population urbanization of the world has attained a high level. The proportion of urban residents had amounted to 45 % in 1997, 75 % for developed countries and 38 % for developing countries.<sup>20</sup> According to the estimation of the UN, half of the population will be living in urban areas by the end of twentieth century, while the proportion of urban residents will continue to grow in the twenty-first century. After three decades of ups and downs, China's population urbanization has taken the opportunity of reform and opening up. The proportion of urban residents had risen to 29.4 % in 1996, 12 % higher than 20 years previous, having created rather rapid development.<sup>21</sup> It is estimated that the rapid growth of urban residents will continue until the end of the twentieth century, and the development speed may be slightly lowered between 2000 and 2010 and further lowered between 2010 and 2025. In this way, the average growth of urban residents from 1995 to 2000 will amount to 4.3 %, 4.0 % from 2000 to 2010, and 3.0 % from 2010 to 2025. With the year of 1995 as the basic year, when the urban population of 363.36 million accounts for 30.0 % of the total population (a bit higher than statistics, but may be closer to the fact), the estimation over the population urbanization before 2025 is presented in Table 1.4.

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<sup>20</sup>Data source: Sadik, N., *The State of World Population 1997*, UNFPA (Sales No. E95XIII.16), New York, 1997 [28].

<sup>21</sup>Data source: Liu Hong, *Statistical Yearbook of China 1997*. Beijing: China Statistical Publishing House, 1997, P69.

**Table 1.4** Estimation on the population urbanization between 1995 and 2025

Year	Low level		Medium level		High level	
	Urban population (million)	Proportion (%)	Urban population (million)	Proportion (%)	Urban population (million)	Proportion (%)
1995	363.36	30.0	363.36	30.0	363.36	30.0
2000	437.85	34.2	448.50	35.0	454.89	35.5
2010	611.69	44.1	663.89	47.8	693.16	49.9
2025	925.61	60.9	1,034.32	68.1	1,111.81	73.2

According to the medium-level estimation, China's current urbanization level equals to the world level in the early 1950s, urbanization in 2000 is equivalent of the world level in the early 1970s, the urbanization level in 2010 equals to the world level in the mid-1990s, and in 2010, China's urbanization will reach the current average level of the world. This means that China will make up the 40-year gap with world population urbanization within 20 years, which is very rapid. In this way, China's urban population will increase by 85.16 million from 1995 to 2000. Based on the natural growth rate of urban population in 1996 of 8.8%, the natural growth of urban population in these 5 years amounts to 16.27 million. Therefore, it can be calculated that the migration to urban areas from rural areas will reach 68.89 million. If every two rural labors migrating to cities bring one youth or old man with them, a total of 45.93 million surplus rural labors can be transferred to urban areas in the period of the "9th Five-Year Plan." According to the *China's Agenda in the 21st Century* released in 1994, the surplus rural labor in China had exceeded 100 million and might reach 200 million by 2000. In light of the above estimation, urban areas can only absorb 1/4–1/3 of the total rural surplus labors, so a rational selection shall be made on where other surplus labors shall be practically transferred.

The correct understanding and judgment on rural resources are considered as the basis for the selection. China's total area of 9.6 million m<sup>2</sup> consist of only 10 % of arable land, 32.6 % of usable grassland, 13.4 % of forest, 1.8 % of inland water, and 42.4 % of other types of land (including unusable grassland).<sup>22</sup> The rural labors are mainly concentrated on arable land and involved in the cultivation and production of grains, cotton, oil, vegetables, etc. The allocation of human resources and natural resources is apparently irrational. On one hand, the large population and small amount of arable land cause a serious contradiction and lead to severe surplus labors in the cultivation sector; and on the other hand, mountains, grasslands, and water resources are idle and demand labors for development. Therefore, at first, the surplus rural labors shall be partly, about 1/3, transferred to forestry, animal husbandry, and fishing. It is not only theoretically necessary but also has been proven to be practical and promising by practices.

<sup>22</sup>Data source: Liu Hong, *Statistical Yearbook of China 1997*, Beijing: China Statistical Publishing House, 1997, P4–5.



Another channel to absorb the surplus rural labors is to transfer another 1/3 of surplus rural labors to township enterprises. Under the structure of the “dual economy” (rural and urban economies), township enterprises that connect rural and urban economies spur the development of the rural economy, help peasants become wealthy, and absorb a large amount of rural labors, which have become the main channel for the transfer of surplus rural labors. As the economic growth method is transforming from the extensive to intensive type, township enterprises shall be upgraded. Township enterprises shall adapt to the reduction of township enterprises' capacity to absorb surplus rural labors after the improvement of technological structure, handle the opportunity, establish proper technological structures, give full play to the comparative advantages of resources and labors, develop intensive processing, improve the added value, and continue to play their roles in absorbing the surplus rural labors.

Another 1/3 shall be transferred to urban industry or commerce. The key is to establish and improve a standardized labor market and provide reliable supply and demand information on labors and service. Urban labor markets shall collect reasonably priced fees from peasants but shall adhere to strict management and examine their identity cards, permits for seeking jobs and doing businesses away from hometowns, health certificates, and family planning certificates. It will facilitate the overall understanding of the basic conditions of peasants seeking jobs and doing businesses in towns, help employers in the selection of employees, promote the management on public order and family planning, and incorporate the peasants working in towns in social management.

#### ***1.4.6 Trend of Stronger Population Flow and the Selection of Decisions on the Development of Central and Western Regions***

According to the population distribution in China, the six provinces and autonomous regions (Inner Mongolia, Ningxia, Gansu, Qinghai, Xinjiang, and Tibet) take up 53 % of the total area of China, but their population only accounts for 6.3 % of the total Chinese population. The nine provinces and autonomous regions at the south-eastern coastal areas and the three municipalities under the jurisdiction of the central government including Beijing, Tianjin, and Shanghai cover 14 % of the total area of China and occupy 41 % of the population.<sup>23</sup> Other 13 provinces and municipalities under the jurisdiction of the central government take up 33.2 % of the total land area but only 52.8 % of the total population. The “three-step” population distribution from the west, center, and southeast is generated, with a population density ratio of 1:13:25. In addition to natural environment reasons, including the landscape, geological structure, and climate, and resource reasons including the soil quality,

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<sup>23</sup>Taiwan, Hong Kong, and Macau are not included, the same hereinafter.

**Table 1.5** Comparison of the average per capita income of rural families in southeastern coastal areas and northwestern areas (unit: yuan)

Year	1978	1985	1990	1996
Beijing	224.8	775.1	1,297.1	3,561.9
Tianjin	178.4	564.6	1,069.0	2,999.7
Hebei	91.5	385.2	621.7	2,055.0
Liaoning	165.2	467.8	836.2	2,150.0
Shanghai	290.0	805.9	1,907.3	4,846.1
Jiangsu	152.1	492.6	959.1	3,029.3
Zhejiang	–	548.6	1,090.0	3,463.0
Fujian	134.9	396.5	764.4	2,492.5
Shandong	101.2	408.1	680.2	2,086.3
Guangdong	182.3	495.3	1,043.0	3,183.5
Guangxi	119.5	303.0	639.5	1,703.1
Hainan	–	–	696.2	1,746.1
Inner Mongolia	100.3	360.4	607.2	1,602.3
Tibet	–	353.0	649.7	1,353.3
Gansu	98.4	255.2	431.0	1,100.6
Qinghai	–	343.0	559.8	1,173.8
Ningxia	115.9	321.1	578.1	1,397.8
Xinjiang	199.2	394.3	683.5	1,290.0

Data source: *Statistical Yearbook of China 1997*, P314

fresh water, forest, and grassland, the accumulation of economic development and social progress also contributes to the population distribution that has remained for a century. Along with the development of commodity and market economy after reform and opening up, the flowing population with the “influx of rural labors” has emerged, which strongly challenges the original population distribution structure. How many people join the population flowing from Anhui, Jiangxi, Henan, Hubei, Sichuan, and Xinjiang to southeastern coastal areas? It is difficult to provide precise statistics. Beijing and Shanghai have more than three million rural labors, and Guangdong, Zhejiang, and Jiangsu have several million. Based on 8–10 %, the proportion of migrating rural labors in total population, the nationwide flowing population has reached about 100 million. The situation of the population flowing to the southeastern coastal area is further complicated because different people flow to these areas with different methods and different goals. However, according to the “push–pull” theory on population migration and flow, it is mainly driven by economic benefits. The point is clearly illustrated by the variation of the income gap between rural families in the west and in southeastern coastal areas (Table 1.5).

According to Table 1.5, the gap between the average income of rural families in the northwest and in southeastern coastal areas is constantly expanding, which is the fundamental reason for the population flow. It is similar between the central China and southeastern coastal areas. Apart from the large number, the flowing population is also featured with comparatively high quality. A byline article in Kuangming

Daily once revealed that Anhui Province had suffered an outflow of 980 intellectuals, including 24 of senior titles and 263 with intermediate titles in 1991, but only enjoyed an inflow of 134 intellectuals, including 24 of senior titles and 110 of intermediate titles, where a serious “deficit” is formed [29]. The talent deficit, as well as the capital shortage and technological backwardness, disconcert the strategy of developing the central and western areas. It is notable that the current “policy of putting the stress on central and western areas” only emphasizes capitals and technologies but not the talents. The economic competition under market economy is, in the final analysis, the talent competition. Particularly, in the new intellectual revolution led by life science in the twenty-first century, the talent is crucial to the success of economic development. Talents must be kept and attracted to develop the central and western areas. Therefore, for the development of the central and western area, it is necessary to put talents at the forefront, cultivate the talent awareness, and select and encourage talents for the development strategy.

Corresponding policies and mechanisms shall be established to create a favorable external environment in order to collect a sufficient number of talents. Currently, talents tend to exist more in coastal areas owing to the higher salaries, handsome reward on invention and innovation, and more flexible environment, compared to inland areas where salaries have not been reasonably graded; the reward on major contribution is not high enough but only limited to a slight float of salaries and changing their children’s agricultural household to nonagricultural household; and some units only promise, but never practice, benefits for talents. Appropriate policies on professional posts, salary rise and promotion, and accommodation shall be issued to keep and attract talents. Meanwhile, a flexible external environment, such as the atmosphere of reform and opening up, democracy, and science shall be created, in order to give full play to their talents. The corresponding work environment shall also be established to provide talents with opportunities to showcase their capacities. As illustrated by some typical successful cases, only when leaders at all levels incorporate talents in the development strategy and ensure them with good work conditions and life insurance, it is possible to absorb the talents that have out flowed and introduced talents from other places.

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## Chapter 2

# Population Economy and Labor Employment

### 2.1 Adjustment: The Key to the Current Overall National Economy<sup>1</sup>

In the *Report on the Work of the Government* in the 2nd Session of the 5th National People's Congress, Hua Guofeng stated that the task in the 3 years since 1979 was to complete the adjustment, reform, rectification, and improvement of the national economy and proportionately follow a track of constant and rapid development. Since this is the first battle China will face on the way to the "four modernizations," China must adhere to the execution of this principle and win the battle.

In the 2 years after the counterrevolutionary Gang of Four<sup>2</sup> was defeated, the national economy has been rapidly restored and developed. Despite the serious disaster in agricultural production in 1978, the grain output had reached an all-time record high of 304.75 million tons. The total industrial output value of 1977 had increased by 14.3 % compared to 1976, while the value of 1978 had grown by 13.5 % compared to 1977, equaling 423.1 billion yuan. The financial income of 1978 had risen by 28.2 % compared to the previous year, reached 113.23 billion yuan, and maintained a slight surplus based on the basic balance of payments. The whole national economy has rid itself of economic stagnation, setback, and paralysis and has witnessed a high level of prosperity that had never been seen in more than 10 years.

Then, why does China follow the principle of adjustment instead of continuing current system and mechanisms? The major reason lies in that Lin Biao and the counterrevolutionary Gang of Four had incurred serious damages, leading to numerous problems in the national economy and major disproportion that cannot be fundamentally changed. The main manifestations include the following: (1) Disproportion between agriculture and industry. Agriculture developed slowly in

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<sup>1</sup>This article was originally published in *Kuangming Daily*, July 7, 1979.

<sup>2</sup>Translator's note: the Gang of Four is the counterrevolutionary group led by Jiang Qing, Wang Hongwen, Zhang Chunqiao, and Yao Wenyuan.

the recent two decades, and the per capita share of grains has been floating around 300 kg. Instead, the per capita output of cotton and oil has declined. The situation sharply contradicts the industrial development and people's living standard. (2) Disproportion between the light industry and heavy industry. China's investment on the light industry originally accounted for only a small part in total investment and has declined in the recent two decades. The light industry has constituted the weak point of the national economy, with an insufficient market supply and a lack of competitive capacity. (3) Disproportion among fuels, power, raw material industry, and other industries. Particularly, the development of coal, electricity, oil, transportation, and building materials does not match the demands by the development of the national economy. The short supply of electricity has barely reduced the industrial production capacity by around 20 % in China; (4) Disproportion between accumulation and consumption. The too-high accumulation rate and much investment on capital construction have gone beyond the capacity of the national economy and therefore brought about a series of problems. For the accumulation, only a small part of investment is directly related to people's lives, including the collective welfare, accommodation, cultural education, health care, and utility, which has contained the improvement of people's lives, in addition to many debts. (5) Disproportion among the overgrowth of population, the growth of labors newly emerging into the market, and the growth of the means of production. China's population has grown by more than 400 million in the less than 30 years after the foundation of New China, and a part of active labor forces cannot be accepted by the production course and therefore become unemployed. The initiatives of staff, enterprises, and local and central departments have been severely injured due to these disproportions, disorder of enterprises, inability to adapt to the economic management system, and chaos remaining in the production, construction, circulation, and distribution. Among the major quality index of industrial products and the raw material consumption index of China's key enterprises, respectively 43 and 55 % have not been restored to the best historical level, and 24 % of state-owned industrial enterprises are suffering losses in different degrees.

The disproportions in the national economy have lasted for a long time. However, these problems have been kept hidden to a great extent when the counter-revolutionary groups of Lin Biao and the Gang of Four ran rampant in China, the criticism over "the theory of only productivity" dominated China, and people could hardly decide whether the production shall be carried on. After the defeat of the counterrevolutionary Gang of Four, the problem of disproportions has been increasingly unveiled along with the restoration and development of the national economy. For example, solutions cannot be found for a car that cannot be started, but a solution can be easily found for an operating car. It is the same with the national economy. The practices of the recent 2 years have yielded positive results, but have meanwhile revealed some problems, especially the major problem of disproportion. It will be a long process to expose the problem and deepen people's understandings. Without the practices in the 2 years after the defeat of the Gang of Four, Chinese people could never have gained such a profound understanding of the problem as today. If faced with the severe major disproportion, shall China move

straight ahead or stop for a little while and make some adjustments? The question is essentially whether China shall follow the objective economic laws and rectify thoughts in economic construction. Karl Marx pointed out that “the primary economic law for the collective-based society is still the time economy and distribution of labor time in different productive departments according to plan [11].” The positive and negative experiences in China’s recent three decades have demonstrated that a more coordinated proportion and better balance will bring about more rapid development of the national economy or vice versa. If China moves straight ahead under the disproportion, increased haste may even lessen the speed of development since it cannot move smoothly. Lowering the speed of forward momentum, actively revealing the conflicts, making corresponding adjustments, and gradually coordinating the proportion can only create the conditions for the rapid development of the national economy.

The tasks for the adjustment of the national economy include the following: (1) adjusting and correcting the disproportion and leading the national economy to the development of proper proportion as planned; (2) reforming the current economic management system in an all-around and systematic way to better adapt the production relations to the productivity and adapt the superstructure to the economic base; (3) rectifying the enterprises that are currently suffering management chaos and reaching the new historical high of the economic and technological indicators of all enterprises; (4) and significantly improving the production, technological, and management level of enterprises by adjustment, reform, and rectification. These aspects are interrelated and help each other move forward. From an overall perspective, other problems can hardly be solved without the solution to the serious economic disproportion. The adjustment is the key to reform, rectification, improvement, and smooth development. The first thing is to complete the adjustment of the proportion relations.

Simply put, the adjustment of the proportion refers to cutting off the investment on the strong points or lower the development speed in these aspects, but promote the weak points in the national economy, thus to realize a comprehensive balance.

To promote the weak points, the first task is to adhere to placing agriculture as the basis and concentrating to develop agriculture, in order to adapt the production of grains and development of other agricultural and sideline products to the population growth and industrial development. Secondly, facilitate the development of textile and other light industries, in order to enable the growth of these industries to catch up with, or even slightly surpass, the growth of the heavy industry and generally adapt the growth of products of textile and other light industries to the growth of domestic purchasing power and export. Thirdly, promote the construction of coal, electricity, oil, transportation, and building materials industries; eliminate the short supply of fuels, power, and raw materials; and ensure the demands by other industries and the whole national economic development. Fourthly, adjust the ratio between accumulation and consumption; appropriately increase consumption; raise the investment on education, health care, accommodation, and utility; and improve the quality of material and cultural life. Actively expand the export and develop foreign trade and tourism to earn more foreign currencies.

To reduce the investment on the strong points, the first priority is to reduce the number of the capital construction, reduce the “long-drawn-out projects” (a project which unnecessarily extends past its original projected deadline), and improve the current low efficiency of investment. The scale of the capital construction shall be confirmed according to the supply of the steel, cement, wood, equipment, and capital. The projects not in urgent demand by the national economy or without the construction conditions shall be stopped, in order to guarantee the timely construction of the projects in urgent demand improve the quality, lower the cost, and shorten the construction period. Secondly, for metallurgy, mechanics, and chemical sectors in the heavy industry, promote the production and meanwhile improve the quality and increase the types of products. Rectifications shall be implemented for enterprises of low sales, low quality, large consumption, and great loss and in short supply of raw materials, whose products are not welcomed in both the domestic and foreign markets. The methods of rectifications include suspending operations to rectify the mistakes or changing the line of production, which shall be selected according to practical conditions. Thirdly, further control the population control and adopt effective measures to reduce the natural population growth rate by a large margin. Of course, the population control cannot be solved in a short time, but needs a long-term plan. At the same time, it will be necessary to properly arrange for the surplus labors after adjustments and labors that have newly matured.

Without a doubt, the adjustment of the national economy plays a positive role based on these basic tasks. Some people consider “regression” whenever the adjustment is mentioned and even groundlessly doubt the realization of the “four modernizations” within the twentieth century.

Firstly, though “regression” may exist in some enterprises, departments, or aspects during the implementation of adjustment, people’s demands cannot be satisfied without adjustments. Compared to poverty, it is better to stop those enterprises of great consumptions, low quality, and great losses, in order to push the development of enterprises of low consumption, good quality, and great profits. By way of analogy, fruit trees need pruning each year. Without pruning, the trees may seem thrifty and fruitful, but the branches will compete for water, nutrition, and sunlight and come into little contact with sufficient air. The results will be thin branches, yellow leaves, small fruits, and lower output and quality of products. If the excessive branches, flowers, and fruits can be cut off in the beginning, the final results will be better, higher output, bigger, and fresher fruits, and much better quality. It can only gain more by abandoning some. The “regression” of some enterprises, departments, or aspects precisely creates the condition for the expansion and development of some other enterprises, departments, and aspects.

Secondly, the adjustment this time is not an “overall regression” and is quite different to the principle of “readjustment, consolidation, filling out, and raising standards” adopted in the early 1960s. At that time, most large-scale industrial and capital constructions had been cut off due to mounting difficulties, which was necessary and correct for that time. However, China currently enjoys a much better situation in agriculture and a sounder industrial foundation and expects a steady progress in the overall production and construction and the growth of national



economy in the 3-year adjustment. Though the investment on some projects shall be reduced, China is trying to make progresses in the adjustments and conduct adjustments along with the development.

Thirdly, based on the above adjustments, the basic disproportions of the national economy have been corrected, which will invigorate the whole national economy and lay the foundation for China's future development at full speed. As a Chinese saying goes, sharpening the axe will not interfere with the speed of cutting of firewood. The adjustments, which play a positive role, will finally bring about the constant and rapid development of the national economy.

The principle of adjustment is definitely progressive for the overall situation, but will decline the speed of development if temporary regression is incurred in some parts. Therefore, the departments, regions, and enterprises shall consider the situation as a whole. When the national economy requires the facilitation of the development, Chinese people shall explore the potentials, lower the consumptions, increase the production, and raise the speed; but when the national economy requires a decline of the growth rate or even the suspension of construction or production, Chinese people shall also follow its requirements and wait for the demands in the future. The emphasis on the particularity of local affairs will stand in the way of implementing the principle of adjustment. If everyone only accepts an increase in investment, but never a reduction, the problem of disproportions will not be solved, which will obstruct the development of the national economy and lead to new and serious difficulties.

The adjustment of the national economy is an important policy that further carries out the spirit of the Third Plenary Session of the 11th Central Committee, as well as the first battle after the focus was transferred to the construction of the socialist construction. If China wins in this battle, the task of adjustment, reform, and rectification will be completed in an all-around way; China's management and technological level will be significantly improved; the whole national economy will be led to a healthy development track with proper proportions; and the solid foundation for the realization of the "four modernizations" will be built. However, if China loses the battle, the future situation will be more unfavorable. The results of the adjustment this time will play a profound influence on the future development of the national economy and the progress of the "four modernizations." Chinese people shall spare no effort to win this critical battle and complete the central task of the Party and all the people.

## **2.2 Comprehensive Balance Between the Population and the National Economy [12]**

The comprehensive balance of the socialist national economy requires a rational proportion of the production from the means of production and from the means of livelihood; a rational proportion of agriculture, light industry, and heavy industry;

a rational proportion of agriculture and industry; and a rational proportion of accumulations and consumptions, etc. based on the objective economic laws, in order to maintain a balance between the social production and social demands. Both social production and demands directly and closely relate to the development of population, so keeping a proper balance between the population and the social production and demands is both the task and starting point for the comprehensive balance of the national economy. The goal of the comprehensive balance is to maintain the rapid development of the national economy with a proper planned proportion in order to satisfy people's increasing material and cultural needs.

Many problems arise from the comprehensive balance between the population and the national economy. This article will conduct preliminary discussion on the proportions in the relation between the population quantity and quality and the economic development.

### ***2.2.1 The Balance Between the Total Population and the Means of Livelihood***

People are simultaneously both producers and consumers. Everyone is born as a consumer without any condition from birth to death. However, people can only become producers when they become independent with labor abilities and in their labor age. Karl Marx and Friedrich Engels pointed out that "people have to live on before they 'create the history.' They need clothes, food, accommodation, and other things for living. Therefore, the first historical activity is to produce these things on demands, i.e. the production of the material life itself."<sup>3</sup> Regardless of the form of society, "to produce these things on demand" constitutes the condition for population reproduction, so it is a general law that a certain proportion of the population size and means of livelihood shall be maintained, despite different forms, essences, and results in different social formations.

Before capitalism, the law of the consistency between population and the means of livelihood had been spontaneously functioning in the social formations, when the adjustments on the proportions were completed by damaging the original proportions. In the primitive commune, people could only obtain a limited means of livelihood due to the extremely low productivity, so when the population went beyond the supply capacity of these means of livelihood, subsequent hunger and illness raised the death rate and reduced population size. That is how the proportion between the population and means of livelihood was spontaneously adjusted by the law of biology. The adjustments on the proportion between the population and means of livelihood in the slave, feudal, and capitalist society are also completed spontaneously, though they no longer depended on the law of biology. The relative surplus of population uniquely in capitalism, on one hand, prepares a sufficient

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<sup>3</sup> Vol. 3 *Karl Marx and Friedrich Engels*, People's Press, P31.

**Table 2.1** Growth rate of the national income and population, 1953–1975 (unit: %)

Period	Average annual growth of the national income	Average annual growth of population
1st five-year plan	8.9	2.4
2nd five-year plan	-3.1	0.8
1963–1965	14.5	2.5
3rd five-year plan	8.4	2.6
4th five-year plan	5.6	2.2

quantity of labors for the expansion of reproduction for capitalists and, on the other hand, requires labors to control their childbirths based on the concern of their own development and the growth and employment of their children. In this way, the adjustment on the proportion between population and means of livelihood is spontaneously adjusted.

Socialism has realized the public ownership of the means of production and eliminated exploitation, so the spontaneous adjustment is replaced by the planned adjustment. Engels pointed out that “the communist society is the only form of society that can conduct adjustments on the production of materials and people if necessary without any difficulty.”<sup>4</sup> In order to achieve this goal and maintain a proper proportion between population and the means of livelihood, special attention shall be paid to the following relations for the comprehensive balance of the national economy based on positive and negative experiences in three decades.

### 2.2.1.1 The Proportion Between Population and the National Income

The national income refers to the total values created by labors in a certain period in the national material production, which is an important indicator to measuring the development speed of the national economy and the improvements of people’s living standard. Based on a certain composition of the national income, the growth rate of population and the national income will reflect whether the proportion between the population and means of livelihood is proper. See the growth rate of the national income and population after the foundation of New China in Table 2.1.

As shown in Table 2.1, except the period during the 2nd five-year plan, the growth rate of the national income had exceeded the growth rate of population by a large margin. Then, is it correct to reach a conclusion that China had seen a proper proportion between the growth of population and the national income and a proper proportion between the total population and means of livelihood? The author does not believe so. Firstly, the national income incorporates both the means of livelihood and means of production, while the means of livelihood only account for a small part. Secondly, after the distribution and redistribution, the national income will be finally divided into accumulation and consumption funds. Not all national

<sup>4</sup> Vol. 35 *Karl Marx and Friedrich Engels*, 1971, People’s Press, P145.

incomes will contribute to consumption. Thirdly, instead of the growth of the total national income, more importance shall be attached to the growth of per capita income, since the per capita reflects people's living standard of a country more accurately. From 1950 to 1976, China's national income had increased from 11.8 billion USD to 125.2 billion USD (by 9.6 times); the United States had increased from 265.8 billion to 1.5118 trillion USD (by 4.7 times); Japan had increased from 16.2 billion<sup>5</sup> to 472.8 billion USD (by 28.2 times); and France had grown from 25.9 billion to 297.7 billion USD (by 10.5 times). The ratio of the growth rates of the national income of China, the United States, Japan, and France was 1:0.5:2.8:1.1. However, due to China's population growth of 69.1 % in the same period, China's per capita national income increased from 21 to 134 USD (by 5.4 times); the United States' per capita national income raised from 1,746 to 7,082 USD (by 3.1 times); Japan grew from 189<sup>6</sup> to 4,193 USD (by 21.2 times); and France increased from 621 to 5,639 USD<sup>7</sup> (by 8.1 times). The ratio of the growth rates of the per capita national income of China, the United States, Japan, and France was 1:0.6:5.4:2.2. It can be seen that China's growth rate of per capita national income was relatively lower than Japan and France due to the more rapid population growth of China. Within this period, France shared a similar growth rate of the national income with China, but its growth rate of per capita national income was more than two times that of China, since France's population only increased by 26.8 %. Japan's growth rate of the national income was 2.8 times that of China, while its growth rate of per capita national income reached 5.4 times that of China owing to its population growth of only 36 %. In the recent three decades, though China has experienced a steady growth rate of the national income, with even the total national income placing China among the top level, China's per capita average national income is still low compared to the world level, ranking behind the top 100 among the 160 countries and regions, due to the large and rapidly growing population. China can only fundamentally change the inconsistency between population and the means of livelihood by vigorously improving the per capita national income, which is an important symbol for the people's living standard of a country.

### **2.2.1.2 The Proportion Between the Population and the Consumption Funds**

The national income can be utilized as the accumulation funds or the consumption funds. A proper proportion shall be maintained between the consumption funds and population growth in order to achieve the balance between the total population and the means of livelihood. After the foundation of New China, China's consumption funds have seen an evident growth along with the development of production and the increase of the national income. From 1952 to 1978, China's consumption funds

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<sup>5</sup>Statistics of 1952.

<sup>6</sup>Statistics of 1952.

<sup>7</sup>Statistics of 1957.

have increased by 2.9 times, with an annual growth rate of 5.4 %. However, China's per capita consumption volume has only grown by 1.3 times, with an annual growth rate of 3.2 %, due to the population growth of 66.7 % in this period. Considering the price increase, the per capita consumption has actually grown by only 90 %. Moreover, the new population utilizes approximately 60 % of the newly increased consumption volumes to satisfy the demands. Therefore, only 40 % are used on the original residents, which cannot fulfill the demands on the improvement of people's living standard.

The balance between the population and consumption funds requires a proportional growth of the two aspects and a concern on the distribution and utilization of the consumption funds. The volume of retail sales of consumer goods in 1978 consisted of 51 % of food, 23 % of clothes, 22 % of daily necessities, and 4 % of fuels. The food and clothes, especially the food, constituted the major part of the consumption. Therefore, the growth of food and clothes is strongly related to the balance between population and the means of livelihood. The rural and urban residents' per capita consumption of pork and sugar has respectively increased from 5.9 to 7.7 kg and from 0.9 to 3.3 kg from 1952 to 1978. However, the per capita consumption of grains and edible vegetable oil has declined in different degrees. The per capita consumption of grains was 197.5 kg in 1952 and 204.5 kg in 1956 and declined to 196.5 kg by 1978; the per capita consumption of edible vegetable oil was 2.1 kg in 1952 and 2.55 kg in 1956 and dropped to 1.6 kg by 1978; and the per capita consumption of cotton and cloth was 16.4 chi<sup>8</sup> in 1952 and 24.8 chi in 1956 and declined to 19.1 chi by 1978, a little higher than 1952, but lower than 1956. Obviously, the growth of the main consumer goods that satisfy people's basic needs of living has long since been disproportionate to the growth of population.

Many factors have contributed to the disproportion between the population and the consumption funds. From the perspective of the comprehensive balance of the national economy, the first problem is that the overgrowth of population and the newly increased population have consumed a large amount of funds. Currently, 38.6 % of China's total population is younger than the age of 15, 10 % higher than developed countries, and thus the cost to raise these minors has increased. The consumption volume of these minors under 15 had reached as high as 45 billion yuan from 1953 to 1978, accounting for 1/3 of the national income, which will inevitably reduce the consumption of adults. If the proportion of minors could be reduced by 10 %, China could save 16 billion yuan, equal to 10 % of the total residents' consumption of 1978.

Secondly, the accumulation and consumption in the national income is disproportionate. It is generally believed that the accumulation rate of 25 % was proper in the 1st five-year plan owing to the rapid and steady development of production and significant improvements of people's lives. However, since the 2nd five-year plan, due to the pursuit of high accumulation and speed, the accumulation rate had exceeded 30 %, even reached 40 % in some years and maintained above 33 % in the 4th five-year plan and between 1976 and 1978, which had seriously restrained

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<sup>8</sup>Translator's note: a traditional Chinese unit, three chi is approximately equal to 1 m.

the consumption and led to the disproportion between the means of consumption and the population growth.

Thirdly, the agriculture, light industry, and heavy industry are disproportionate. The agriculture, light industry, and heavy industry are all main sectors of the material production. Products of agriculture and light industry are mainly utilized to satisfy people's needs of living, though part of these products belong to the means of production, while the products of heavy industry are mainly utilized in the means of production though part of these products belong to the means of livelihood. Therefore, the proper proportion among the agriculture, light, and heavy industry plays an important role in the proportion between the population and the means of livelihood. Since the foundation of New China, though China has emphasized on the development of agriculture and light industry, the idea of giving priority to the heavy industry has been deeply ingrained, leading to the slow development of agriculture, smaller proportion of the light industry and agriculture, and bigger proportion of the heavy industry. For example, the growth rates of grains and population were both 2 % between 1957 and 1977. The per capita share of grains in the two decades was around 300 kg. Production dictates consumption, so the slow development of agriculture and light industry will necessarily result in a slow development of the means of livelihood and the disproportion between the population and the means of livelihood.

### **2.2.1.3 The Proportion Between the Investment on the Productive and Nonproductive Capital Construction**

The proportion between the investment on the productive and nonproductive capital construction directly relates to the balance between the population and the means of livelihood. In the 1st five-year plan, 28.3 % of the capital construction had been utilized in the nonproductive capital construction, including staff accommodation, education, health care, catering, and utility, so the ratio between the productive and nonproductive capital construction was 2.5:1. The Soviet Union's ratio was 2.1:1 between 1918 and 1962, and Korea was 2.5:1 from 1954 to 1960, both of which were similar to China in the 1st five-year plan.

During the 2nd five-year plan, the nonproductive capital construction only accounted for 13.2 % of the total investment on capital construction, and the ratio between the productive and nonproductive capital construction was 6.6:1. During the readjustment period from 1963 to 1965, the investment on the nonproductive capital construction had been raised to 17 %, so the ratio had declined to 4.9:1. However, the ratio had been expanded to 6.9:1 between 1967 and 1976, which seriously damaged the balance. Since the foundation of New China, the investment on accommodation construction takes up 5.8 % on average, including 9.1 % in the 1st five-year plan and 4–5 % in the 2nd five-year plan and between 1967 and 1976, so the urban per capita housing area declined from 4.5 m<sup>2</sup> at the foundation of New China to 3.6 m<sup>2</sup> in 1979, with 0.9 m<sup>2</sup> smaller. The investment on urban utility construction only accounts for 1.9 %, much lower than foreign countries, leading to a

scant supply of water, short supply of coals and gas, traffic congestion, insufficient commercial service points, and difficulties in seeing a doctor and staying in the hospital. By 1977, every 10,000 people owned three buses, and there was one hospital bed per 530 urban residents, which was very incongruous with the growth of staff and urban population.

Regarding the problems in the proportion between the Chinese population and the means of livelihood, on one hand, China had lost control over the population growth before the 1970s, and the average population natural growth rate in the three decades after the foundation of New China had reached as high as 19‰ despite evident results had been reached after 1970s; and on the other hand, China's national economy, especially the production and development of consumer goods, has not developed fast enough, and people meet difficulties in food, clothes, housing, traffic, education, health care, and consumption, leading to a serious imbalance between the population and the means of livelihood. The solution is to vigorously control the population growth and meanwhile adhere to the principle of adjustment, try to facilitate the development of agriculture and light industry, appropriately reduce accumulations and increase consumptions, properly reduce the proportion of the investment productive construction but raise the proportion of the nonproductive construction, and therefore enable a more rapid development of the production of consumer goods, traffic, accommodation, education, health care, catering, and utility.

### ***2.2.2 The Balance Between the Population of Working Age and the Means of Production***

It is of great significance to consider the proportions between the population and development of the national economy from the perspective of consumption. However, it is production, instead of consumption, that plays a decisive role in the development of the national economy. As pointed out by Karl Marx, “production is the practical starting point and the dominating factor [13].” The consumer goods are created by the material production sector during the production, so the development of production decides the growth of the consumer goods and the consumption level. Therefore, the most important in the discussion on the proportion between the population and the national economy is the proportion between the quantity of labors and means of the production. Labors constitute the major part in the population of the working age. The population of working age equals to labors adding the non-independent population among the working age population due to school education, illness, and disabilities. The balance between the working age population and the means of production relies on the proportion between labors and productive fixed assets.

The following formula is used: The basic relation between the labors involved in the material production and the productive fixed assets lies in the direct proportion between the quantity of employment of labors ( $V$ ) and the fixed assets ( $C$ ) and the inverse proportion between  $V$  and the technical equipment for labors ( $K$ ). Suppose

that the quantity of employment of labors at the base year as  $V_0$ . Then, the quantity of employment of labors in the  $n$ th year is

$$V_n = V_0 \cdot \left( \frac{1+C}{1+K} \right)^n$$

Obviously, three different situations may appear in this formula:

1. If  $1+C > 1+K$ , i.e., the growth rate of the fixed assets exceeds the speed of the improvement of the technical equipment for labors, the employment of labors will increase correspondingly.
2. If  $1+C = 1+K$ , i.e., the growth rate of the fixed assets equals the speed of the improvement of the technical equipment for labors, the employment of labors remains unchanged.
3. If  $1+C < 1+K$ , i.e., the growth rate of the fixed assets falls behind the speed of the improvement of the technical equipment for labors, the employment of labors will reduce accordingly.

The variation of the employment of labors in the production of the industrial and agricultural materials will generally experience the three stages later on. Here the estimation is made with the industrial production as an example.

Since China's younger people play a major part in the age structure, China's total population and working age population will constantly increase until 2012, maintain unchanged in 2012 and 2013, and start to decline after 2013, as calculated based on the total fertility rate of the 1.2 billion people by the end of the twentieth century. Therefore, in order to ensure the employment of the working age population, China shall ensure  $1+C > 1+K$  before 2012,  $1+C = 1+K$  in 2012, and 2013 and  $1+C < 1+K$  after 2013. Referring to the variation of  $C$  and  $K$  in previous three decades and relevant statistics from foreign countries, with 1979 when  $V_0 = 53.4$  million people as the base year, the variation of the employment of industrial labors in the future eight decades is listed as below:

1. Suppose  $C = 6.5\%$  and  $K = 5\%$  before 2012, then the size of employment of industrial labors in 2012 is

$$V_n = V_0 \cdot \left( \frac{1+C}{1+K} \right)^n = 5,340 \times \left( \frac{1+0.065}{1+0.05} \right)^{33} = 8,528 \text{ (万人)}$$

8,528(万人): 85.28 million people

2. If  $C+K$  in 2012 and 2013,  $C = 5.8\%$  and  $K = 5.8\%$ , the number of the employment of industrial labors in 2013 is

$$V_n = V_0 \cdot \left( \frac{1+C}{1+K} \right)^n = 8,528 \times \left( \frac{1+0.058}{1+0.058} \right) = 8,528 \text{ (万人)}$$

8,528(万人): 85.28 million people



3. If  $C=5.5\%$  and  $K=6.5\%$  in 2013 and after, the number of the employment of industrial labors in 2060 is

$$V_n = V_0 \cdot \left( \frac{1+C}{1+K} \right)^n = 8,528 \times \left( \frac{1+0.055}{1+0.065} \right)^{47} = 5,747 \text{ (万人)}$$

5,747(万人)=57.47 million people.

The three situations mentioned previous are also the three development stages for the variation of the number of employment of industrial and agricultural labors during the industrialization, which have already been proven by the history of the current developed capitalist countries. Owing to the different speeds of the growth of the fixed assets and composition, the employment of labors involved in industrial and agricultural material production has increased, remained unchanged, and finally declined. The decline is more evident in agriculture and the “primary industry” such as the mining industry. From these instances, it is also obviously seen that the sizes of employment of labors will vary significantly after a long time despite the small difference between the growth rates of the fixed assets ( $C$ ) and the labor equipment ( $K$ ). For example,  $K$ 's growth rate is only 1% higher than  $C$  in the 47 years from 2013 to 2060, but the employment declines by 30.54 million. Then, can the conclusion be drawn that the size of employment of labors will constantly decline along with the improvements of the technical equipment of labors? The author believes not. The main reasons are listed as follows.

Firstly, except the material production sectors, the national economy also shows great demands on labors in the nonmaterial production sectors. The increase of the technical composition and the improvements in the labor productivity in the material production will indeed reduce the demands of the sector on labors, but create conditions for the development of nonmaterial production sectors including science, education, and health care and service and increase the employees in these sectors. Between 1950 and 1975, the United Kingdom had seen an annual growth rate of 0.5% in the number of employees in material production, but an annual growth rate of 1.2% in nonmaterial production; Germany had seen an annual growth rate of 0.35% in material production, but an annual growth rate of 1.7% in nonmaterial production; and France had seen an annual growth rate of 0.9% in the number of employees in the material production, but an annual growth rate of 1.35% in nonmaterial production. Then, the number of employees increased in the nonmaterial production has exceeded the number of employees decreased in the material production, so the total employment has still significantly increased.

Secondly, owing to the improvement of the technical composition in the material production and the significant rise of the labor productivity, the sharp increase of the means of livelihood will support the expansion of employment in the nonmaterial production, and the increase of the means of production will also provide more channels for greater employment. In particular, the improvement and widespread application of science and technology will lead to the emergence of new production sectors and industries and enormously expand the employment range of labors. Therefore, on one hand, the number of labors in demand in material production is in

direct proportion to the increase of fixed assets and in inverse proportion to the improvement of the labors' equipment, so the technical progress and improvement of labor productivity will inhibit the employment of the working age population; and on the other hand, from the perspective of the whole national economy, the technical progress and improvement of the labor productivity will also increase the labor employment in other ways. In order to maintain the balance between the growth of the working age population and the growth of the means of production based on the practices of socialist constructions in China, the following relations are very crucial.

### **2.2.2.1 The Relation Between the Growth Rate of the Working Age Population and the Growth Rate of the Means of Production**

The production of population, featured with long production cycle and steady variation, greatly vary with the material production. As the working age refers to the age above 15 years, the size of the working age population in the next 15 years can be basically confirmed after the deduction of the deaths of people younger than 15. Since the late 1950s, China partially emphasized people's role as the producer, over-estimated the growth rate of the means of production and the absorption of labors, and even regarded labors as "insufficient" in the "Great Leap Forward" period; but meanwhile, China had ignored people's role as consumers and negated or underestimated the difficulties incurred by the large population and overgrowth of labors, which led to the disproportion between the growth of the working age population and the growth of the means of production. Between 1952 and 1977, China's newly increased fixed assets each year amounted to about 15 billion yuan on average and has reached more than 20 billion yuan since 1973, not to mention that a part of these newly increased fixed assets are used to improve labors' original technical equipment. Even if all these assets were utilized to solve the employment of working age population, only 1.5 to 2 million jobs could be provided on the assumption that the technical equipment of each staff member costs 10,000 yuan on average, which makes the employment problem more difficult to solve.

In rural areas, the contradiction between the large population and small amount of land becomes increasingly prominent. The arable land per capita or per agricultural labor of China is listed in the low level of the world. Particularly, in southeastern coastal areas where per capita arable land is very little, there have been an excess of rural labors, leading to work-in-turn and intermittent layoffs. Without a doubt, China's agricultural modernization owns its own characteristics. However, the agricultural mechanization and the contradiction between the large amount of agricultural population and labors and the small amount of arable land will be realized, so the proportion shall be gradually adjusted to adapt to the agricultural modernization.

Owing to the long-term population reproduction, the working age population in the twentieth century can be generally confirmed. Before 1990, 14 million people from the working age population will be added each year on average, so the

disproportion between the growth rate of the working age population and means of production cannot be eliminated in the short term. Apart from vigorously developing production, increasing accumulation, and creating more jobs, family planning must be implemented to practically control the population growth and therefore control the growth of the working age population in the future, in order to fundamentally adjust the proportion between the two.

### **2.2.2.2 The Relation Between the Increase of Employment and the Improvement of Labor Productivity**

Due to the disproportion between the working age population and the means of production, arranging for more employment is a very urgent need. Over three decades since the foundation of New China, China has accumulated many experiences in the arrangement of labor employment but still has many problems to be solved, including how to deal with the contradiction between the increase of employment and the improvement of the labor productivity.

The relation between the two aspects has been properly handled during the 1st five-year plan period, when the employment problem of the four million unemployed people left by the Old China and the large amount of new population had been solved and the labor productivity had been rapidly increased. The annual growth rate of the industrial labor productivity had reached 8.7 %, which mainly contributed to the increase of the industrial output value. However, the “huge crowd strategy” dominated the beginning of the 2nd five-year plan, and the labor productivity had declined by a large margin, and the newly increased industrial output values were all created by the increase of the quantity of labors. The labor productivity had slightly improved in the 3rd five-year plan and slightly declined in the 4th five-year plan, and the increase of the agricultural and industrial output value in these two five-year plans mainly relied on the increase of the quantity of labors. It can be seen that since the 2nd five-year plan, the quantity of labors had been increased at the cost of the productivity. The agricultural and industrial labor productivity had not improved for a long time or even declined slightly, bringing China to the unfavorable cycle of “low salary, more employment, no improvement of the labor productivity, lower salary, and even more employment.”

The improvement of labor productivity may inhibit or expand labor employment. From the perspective of the comprehensive balance of the national economy, its role in expanding the labor employment dominates, which has been obviously reflected by the variation of the employment structure. See the variation in the proportion between labors in material production and labors in the service sector in some developed capitalist countries in Table 2.2.

As shown in Table 2.2, the number of employees in the service sector had risen sharply, which mainly depended on the improvement of the labor productivity in the material production. Currently, the labor productivity of Chinese peasants is only 1/10 of American peasants; the labor productivity of Chinese coal miners only amounts to 1/9 of the United States, 1/3 of Japan, and 1/2 of France;

**Table 2.2** Variation of the year 1950 to 1975 employment in material production and service sector in developed countries (unit: %)

Country	United States		Federal Germany		France		Japan	
	1950	1975	1950	1975	1950	1975	1950	1975
Number of employment in material production	42	32	65	53	66	50	69	48
Number of employment in service sector	58	68	35	47	34	50	31	52

Note: The material production in this table includes agriculture, industry, and architecture. The service sector excludes the military department

and the labor productivity of steel workers only equals to 1/26 of the United States, 1/31 of Japan, and 1/14 of France. Without enough means of livelihood and production to support the large amount of nonproductive labors, the service sector cannot expand to a certain scale or absorb more employment. The fundamental way to change China's current situation where 80–90 % of labors are involved in production is to significantly improve the labor productivity of material production. Though the expansion of the employment based on the cost of the labor productivity, i.e., “three labors do the work that requires two labors,” can indeed temporarily increase the employment and release the pressure, in the long term, it hinders the solution to the labor employment since the low labor productivity, slow development of production, and small increase of the accumulation will lower the speed of the development of the service sector. Therefore, more importance shall be attached to the indicator of the labor productivity in the arrangement in labor employment to ensure the steady growth of the labor productivity, which is required by the development of agriculture and industry as well as the solution to the labor employment in the long term.

### 2.2.2.3 The Relation Between the Labor Employment and Economic and Technical Structure

As mentioned above, with a certain amount of means of production, fewer employees can be absorbed based on increasingly improved technical equipment of labors, and vice versa. Therefore, there is an opinion that China shall mainly adopt intermediate or backward technologies instead of modern technologies for the sake of labor employment, while another contrary opinion believes that the most advanced technical equipment shall be used in every material production sector and any second or third-grade technology shall be abandoned. The author believes that both opinions are reasonable in some points, but also need to be questioned in other aspects.

The development of production can be realized by two methods: the increase of the quantity of labors and the improvement of the labor productivity. At present, the method of pursuing the development of production merely by increasing the quantity of labors has been replaced by pursuing the development mainly by improving

the labor productivity. This is also the correct way for the development of China's national economy. The backwardness could never be abandoned if the country did not rely on science and technology and the utilization of advanced technical equipment in each department of the national economy. Therefore, a batch of highly mechanized and automated modern enterprises shall be established for every department of material production as the core force of the national economy. However, the technical equipment is not universal in any country, as facilities may be more advanced, intermediate, or backward, especially in countries of comparatively backward economy and technology, like China. In terms of the large population and weak basis, China shall combine the labor employment with the technical progress and adopt multilevel economic and technical structure instead of single-level technical structure. However, different importance shall be attached to different levels of the economic and technical structure, with the automated and mechanized modern enterprises as the core of the national economy and the semiautomated, semi-mechanized, and manual work-oriented small- and medium-sized enterprises as the supplements: Ensure the steady modernization of agriculture, industry, science, technology, and national defense and meanwhile develop some labor-intensive industries including textile, processing of agricultural, and sideline products and arts and crafts in the light industry; adhere to the all-around development of farm, forestry, animal husbandry, and fishery in agriculture; and at the same time, enhance the service industry including commerce, repair, catering, and urban utility to absorb more labor employment.

### ***2.2.3 The Balance Between the Population Quality and the Economic Development***

The population reproduction, both the quantity and quality of the population, shall adapt to the reproduction of material goods. People produce offspring, which is a kind of reproduction that reproduces both the population quantity and quality. Generally, the younger generation has a better physical quality and improves based on the former generation. Particularly, the younger generation also sees a significant improvement in the ideological and cultural quality, the core part of the population quality. People are developing themselves, improving the intelligence, and accumulating experiences in their long-term struggle to rebuild nature and society. The knowledge is passed on to next generations and then carried forward, so the population quality is constantly improving. Different historical stages have different requirements on people's quantity and quality due to different productivity. In all social forms before capitalism (including the period of capitalist handicraft industry), the development of productivity was mainly featured with manual work despite huge differences among the productivity level of these societies, so the quantity of labors plays a decisive role in the development of productivity. After the Industrial Revolution in the late eighteenth century, machines had gradually

replaced manual work, and then the development of production started to mainly rely on the improvement of the labor productivity instead of the original increase of the quantity of labors. The priority has been then given to the population quality, such as the technologies and cultural level of labors. This trend has been strengthened along with the great progress of science and technologies. According to estimation, 20 % of the increase of the labor productivity in the early twentieth century was contributed by scientific and technological progress. This figure had exceeded 30 % from the 1930s to the 1960s and has now risen to 70–80 %, even as high as 100 % in some sectors. Science and technology are playing a more and more important role as a productive power.

What changes have happened to people's role in the production after the development of science and technology? Some consider that the scientific and technological development has impaired people's role in production and the modernized production mainly depends on the advanced machines and equipment. The author thinks this idea is not overall enough. It is no wonder that the role of modern tools has become increasingly prominent in the modernized production, but people's role in production has not been impaired. The role of the population quantity may be impaired, but the role of the population quality has even been promoted. The development of people's intelligence and the improvement of the population quality have become a powerful tool for the development of modern economy. For example, from 1905 to 1960, the material capitals had increased 6 times in Japan, the number of quantity had grown 0.7 times, and the investment on education had increased 22 times. The investment on the population quality, including education, had seen the most rapid development, which helped Japan reach an obvious economic result of an increase of the national economy by approximately ten times. According to statistics, the Japanese university graduates had grown 15 times between 1951 and 1973, and the graduates from the university institutes had grown by more than four times between 1973 and 1983. In addition, the universal education on the senior secondary school in Japan had cultivated a great number of skilled workers, scientists, and technicians. That is the reason why Japan could create their own technologies based on foreign advanced technologies, establish a series of emerging industrial sectors, and eliminate the scientific and technological gap of 30 years with European and American developed countries within less than two decades. Socialist countries including Yugoslav, Romania, and Korea only obtained rapid development of the national economy owing to the rapid increase of graduates from universities and secondary vocational schools based on the 8–10 years of compulsory education.

Before the foundation of New China, as exploited and oppressed by imperialism, feudalism, and bureaucrat capitalism, Chinese people were living in dire poverty and suffered from many illnesses. The death rate reached as high as 28‰, and the average life expectancy was 35 years in rural areas and less than 40 years in urban areas. This brought about the image of the "Sick Man of East Asia." The population quality was also very low, while Chinese people accepted very little education and were mostly literate or semiliterate. After the foundation of New China, the Party and government not only vigorously developed the national economy but also

paid attention to the development of science, education, health care, sports, etc. Along with the improvement of people's living standard and health care, the current population death rate has dropped by 6.2‰, which is generally low in the world level, and the average life expectancy has increased to 68 years, a comparatively high level compared to other countries. The science, education, and culture have also been greatly changed. Through the three decades after the foundation of New China, the students in colleges and universities have grown 9 times, students in secondary vocational schools have increased 8 times, students in general middle schools have increased 57 times, and the students in the primary school have increased 6 times. This illustrates that the population quality has seen a significant improvement compared to the Old China.

However, China's population quality is still not high enough to adapt to the demands by the development of the national economy in terms of the physical quality and the quality of intelligence, ideology, and culture and is still far behind some foreign countries.

Regarding the physical quality of the people, since the eugenics had been criticized as a bourgeois theory and no effective prevention and treatment was adopted against various hereditary diseases, the proportion of children with congenital cardiac diseases or congenital mental deficiencies, etc. has risen. The grains cannot satisfy people's living and the state demands, and more than 100 million peasants are in food deficit. China shows an even greater gap with other countries in the food constitution and bodies' demands on different nutrition. In 1977, Chinese people's per capita share of aquatic goods only accounted for 1/3 of the United States, 1/8 of the Soviet Union, and 1/1.5 of Germany; the per capita share of meat only equaled to 1/10 of the United States, 1/5 of the Soviet Union, and 1/8 of Germany; the per capita share of eggs only equaled to 1/8 of the United States, 1/5 of the Soviet Union, and 1/6 of Germany; and the per capita share of milk was even lower. The health care in China is also comparatively backward. The number of patients per patient bed in China is four times that of the United States, six times that of the Soviet Union, and six times that of Germany; and the number of patients per doctor in China is two times that of the United States, three times that of the Soviet Union, and two times that of Germany. The current situation inhibits the improvement of people's health, influences the improvement of the population quality, and impedes the construction of the four modernizations (the modernization of agriculture, industry, national defense, and science and technology).

Regarding the ideological and cultural quality, 50 out of each 10,000 people in China are scientists or technicians, compared to 120 of the United States, about 200 of Germany, and more than 300 of France. In China, 10 out of each 10,000 people are students of middle schools or universities, compared to 500 of the United States, 200 of Japan, 140 of France, 110 of the United Kingdom, and 40 of India. It can be seen that China is still far behind developed capitalist states and even some developing countries like India. It proves that China has not freed itself from its backwardness despite China's great development of science and education in the previous three decades. In addition to China's weak foundation, the reason also lies in China's lack of emphasis on science and education and the

understanding of the relation between the population quality and economic development. The proportion of the investment on science, education, culture, and health care in the total investment on capital construction has declined by a large margin in the three decades, and even in some years, the absolute investment on these aspects has also declined, which has seriously affected the development of these aspects and incurred adverse results on the national economy. According to incomplete statistics of 26 provinces, municipalities directly under the central government and autonomous regions, 81 % of total staff graduates from junior middle school or lower level, including 8 % of illiterate or semi-illiterates. 70 % of total staff only owns the qualification of Grade 3 or below, while the technicians only account for 2 % of the total staff. Quite a lot of leaders at all levels know little about modern science, technology, and management, which seriously inhibits the economic development.

In order to build China as a modern socialist power in the twentieth century, it requires the healthy body and vibrant energy of all labors, high wisdom, rich knowledge, and experiences, a large group of scientists, engineers, experts and management cadres, millions of skilled workers, peasants, and other labors that can handle modern production technologies and rapid improvement of the population quality. From the perspective of the comprehensive balance of the national economy, it needs to adjust the proportion between the population and material production in order to complete the goal. The immediate concern in the population production is to vigorously control the population quantity and improve the population quality. The population control will reduce the consumption and increase the accumulation, and the increase of the accumulation will further expand the production scale and enable more employment, which will facilitate the adjustment on the proportion between the working age population and the means of production. At the same time, owing to the increase of the accumulation, more investment can be put on the nonproductive constructions such as the staff accommodation, public traffic, science, education, culture, health care, and sports to facilitate the development of consumer goods and the adjustment on the proportion between the total population and the means of livelihood. The rapid development of science, education, culture, and health care, etc. will be favorable for the balance between the improvement of population quality and the demands by the development of the national economy. The improvement of the population quality will necessarily lead to the growth of the labor productivity, while the increase of labor productivity and the expansion of the production scale will further facilitate the adjustment on the proportion between the working age population and the means of production and the proportion between the total population and the means of livelihood. It can be seen that the adjustment of population production, control of population quantity, and improvement of population quality are closely related to the adjustment of kinds of proportions related to the material production. The fundamental method and condition to realizing the comprehensive balance of the national economy is to solve the disproportion based on the control of the population and material production.



## **2.3 Facilitate the Construction of Modernization Based on the Variation of the Population Age Structure<sup>9</sup>**

### ***2.3.1 Influence of the Age Composition of the Population on Economic Development***

The 12th National Congress of the Party had confirmed the family planning and control of population growth as a basic state policy. The role of population in the modernization construction was raised to a new height. The author believes that the importance shall be attached not only to the quantity and quality of the population but also to the role of the age composition to study the influence of the age composition and its variation over the four modernizations.

A man is not born a producer. People can only become a labor after he or she enters the working age period. However, everyone is born as a consumer. The demography divides the whole population into three basic groups, the youngster group (0–14 years), working age group (15–64), and the elderly population (above 65) according to the different roles of people in different stages. Demography also presents the dependency ratio with the ratio of the sum of the number of youngster and elderly people to the working age population. The higher ratio refers to the smaller proportion of the working age population and the greater proportion of the youngster and elderly population that need to be raised; therefore, the higher ratio is harmful for economic development, and the lower ratio is favorable for economic development. The current dependency ratio of the world is approximately 73.2 %. The dependency ratio of underdeveloped countries is 75.4 %, 1.4 times that of developed countries whose dependency ratio is 51.5 %. On one hand, the high dependency ratio will directly influence the development of the national economy due to the increase of consumption and decrease of productive accumulation, and on the other hand, due to the high dependency ratio, the investment on science and education can hardly be increased accordingly and the quality of the population and labors cannot be improved, which will indirectly affect the development of the national economy. Therefore, a rational age composition and a comparatively low dependency ratio is a very important condition for the economic growth.

### ***2.3.2 The Variation of China's Age Composition and the Dependency Ratio***

How then will China's age composition and dependency ratio change in the future? In order to reach the answer, several proposals on the estimation of the variation of

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<sup>9</sup>This article was published on the *People's Daily*, June 15 1983.

the age composition are given here, with the assumption that China can control the population under about 1.2 billion by the end of the twentieth century:

1. The proposal for a higher fertility rate  
 With a total fertility rate of 2.3 in 1978 as the starting value, the fertility rate will drop to 2.2 by 1985, decline to 1.9 by 2000, and increase to and maintain at 2.1 by 2020. Then, the dependency ratio will be 69 % in 1978, 45 % in 1990, 49 % in 2000, 41 % in 2020, and 56 % in 2040.
2. The proposal for an intermediate fertility rate  
 The total fertility rate will decline to 1.9 by 1985, decrease to 1.6 % by 2000, and increase to 2.1 by 2050. Then, the dependency ratio is 69 % in 1978, 42 % in 1990, 43 % in 2000, 37 % in 2020, and 58 % in 2040.
3. The proposal for a low fertility rate  
 The total fertility rate will decline to 1.7 by 1985, drop to 1.5 by 2000, and increase to 2.1 by 2050. Then, the dependency ratio is 69 % in 1978, 40 % in 1990, 40 % in 2000, 36 % in 2020, and 61 % in 2040.

Why does the dependency ratio change, as mentioned above? In China's current age structure, the population younger than 25 accounts for more than half of the total population, and these people will be within the working age in the future four decades. Meanwhile, the increase of the elderly aged over 65 years cannot compensate for the decline of the number of youngsters due to the decline of the fertility rate. Therefore, the dependency ratio will see a decline until 2020. The population currently (in 1983) aged below 25 years will become the elderly population after 2020. The rapid increase in the number of elderly people will bring about the peak of the dependency ratio around 2040. In order to avoid the serious population-aging problem, the fertility rates of the three proposals will be slightly increased. Then, the population that comes into the working age after 2015 will gradually rebound after 2015 to ensure that the peak of the dependency ratio around 2040 is lower than the current level. After that, the value will slowly decline and maintain around 55 % by 2080, approximate to the current average level of developed countries. According to the variation of the age composition in recent decades, if the fertility rate continues to decline in any of the three proposals, the dependency ratio in the last two decades of this century and the two decades in the next century will undoubtedly see a significant decline.

### ***2.3.3 Take Full Advantage of the “Golden Age” of the Age Composition***

As stated above, China's age composition will embrace a “golden age” of low dependency ratio from the present until around 2020. The “golden age” can be further divided into two periods: from the present to 2000, when the dependency ratio is declining sharply, and from 2000 to 2020, when the ratio will slowly decline and then start to rebound.

This situation is deeply related to modernization and the goal of quadrupling the gross annual value of industrial and agricultural output by 2000. Firstly, in terms of the preparation for construction funds, the annual consumption volume of the youngster population in China reached as high as over 45 billion yuan from 1953 to 1978. Even if this level is maintained, China will see a decline of the consumption volume of the youngster population by 9.2 billion yuan in 1986, by 14 billion yuan in 1990, by 14.5 billion yuan in 1995, and by 13.1 billion yuan in 2000, compared to 1978, after the expenses incurred by newly increased elderly, because the proportion of the youngster aged between 0 and 14 dropped from 35.8 % in 1978 to 27.6 % in 1985, 23.3 % in 1990, 22.3 % in 1995, and 22.7 % in 2000. Therefore, a total of hundreds of billions of yuan can be saved from the present to the end of the twentieth century. This sum of money will play an important role in quadrupling the gross annual value if it is utilized in the production and construction, especially in the improvements of the technical equipment for agriculture and industry.

Secondly, according to the intermediate proposal, the proportion of the working age population aged from 15 to 64 will raise from 59 % in 1978 to 66.6 % in 1985, 70.4 % in 1990, 70.8 % in 1995, and 69.7 % in 2000; and the absolute number of the population will raise from 570 million in 1978 to 830 million in 2000, i.e., an increase of 260 million people in more than two decades.

What role will the growth of the working age population play in quadrupling the gross annual value of industrial and agricultural output? The author believes a dialectical analysis is needed. In the three decades after the foundation of New China, the population has grown rapidly, so the number of labors has also rapidly grown. Therefore, it has brought about difficulties over the labor employment due to the limited area of the arable land and limited growth of the fixed assets and made employment a prominent problem among the population problems. From this perspective, it will be better that the working age population no longer increases or even declines. However, since the youngster group is now taking up a large part of China's age composition, many people will gradually get married and give birth to children in the following two decades, so the working age population will see a significant growth. According to the intermediate proposal, the total population will continue to increase until 2023, and according to the low-level proposal, the population will continue to grow by 2006. Then, the working age population will continue to grow in the following years. If face with an unchangeable situation, the only correct attitude is to spare no effort to control the growth of total population and the working age population and meanwhile do everything to make the best use of the resources of the working age population. As demonstrated by the modernization experiences of some countries, especially Asian countries and regions such as Japan and Singapore, one important condition for the rapid economic growth is to make full use of the cheap labors. China shall actively improve the scientific, cultural, and technical level of labors under the current conditions and develop some specialized labor-intensive industries, in order to increase labor potentials. This does not mean that the more labors, the better; it instead refers to that a greater proportion of the working age population is better than a smaller proportion, under a certain population scale.

Thirdly, it shall be pointed out that the forthcoming “golden age” of the age composition has different meanings in proposals of different fertility rates. For the proposal of a high fertility rate, the dependency ratio will only decline by 20 % from 1978 to 2000. For the intermediate-level proposal, the dependency ratio will decline by 26 %, and the low-level proposal will decline by 29 %. This demonstrates that the dependency ratio can be lowered based on the effective population control, which will lower the state’s expenses on the youngster or elderly, save funds, and facilitate the modernization construction. Under this kind of situation, China will embrace a greater proportion of the working age population and a higher level of “golden age.” The family planning has been listed in the fundamental law of the government as a household basic state policy, so the fertility rate is expected to significantly decline. The decreasing fertility rate will result in the decline of the dependency ratio and thus facilitate the national economy. China shall enhance the work of family planning and make full use of the coming “golden age” in order to realize the goal of quadrupling the gross annual value of industrial and agricultural output by 2000.

## **2.4 Variation of the Population Age Structure and Research on the Problems Related to Macroeconomic Development<sup>10</sup>**

As the world population exceeded five billion (as of July 1978), its influence on economic, scientific, technological, and social development increasingly aroused worldwide concern. Owing to China’s main characteristics of a large population and weak foundation, it is even more important for China to conduct research on the population’s influence on development. In addition to the quantity and quality of population, the age composition of the population is another important factor that is often ignored, which, in fact, needs extensive and in-depth research. This article will discuss several important problems that greatly influence the development of the national economy based on the variation of China’s population age structure.

### ***2.4.1 Retrospect and Prospect of the Variation of China’s Population Age Structure***

The variation of the population age structure is decided by three factors: newly born children added to the total population each year, the deaths in each age group, and the number of people migrating in and migrating out from China’s

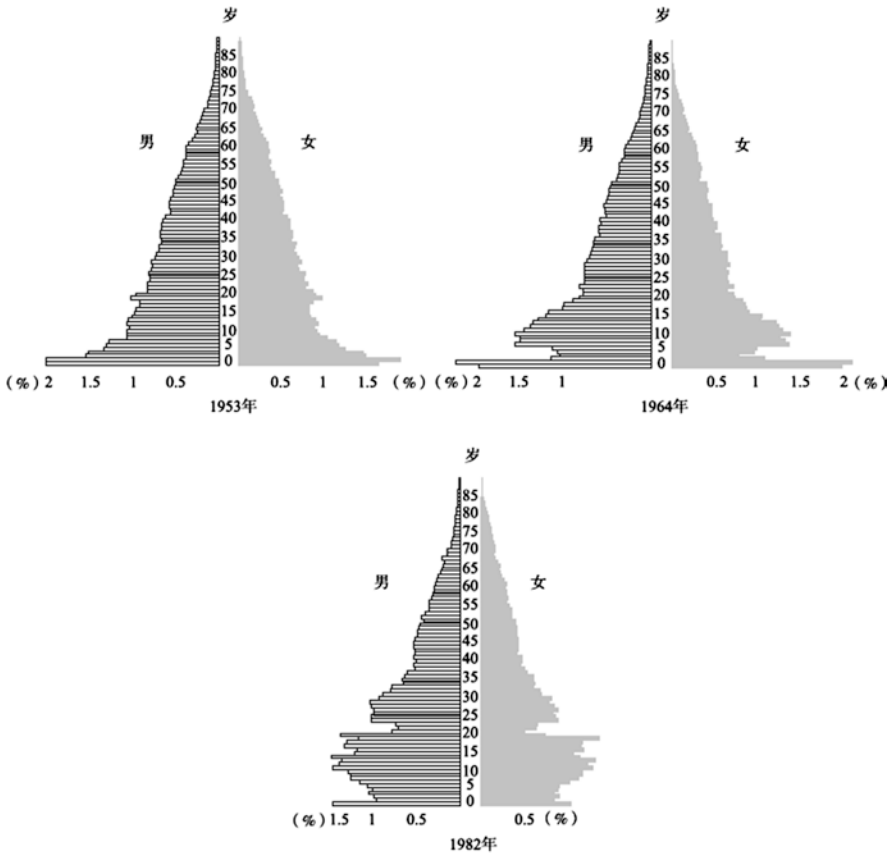
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<sup>10</sup>This article was published in the opening issue of *Chinese Journal of Population Sciences*, 1st issue, 1987.

total population. Since the number of immigration and emigration is very small in China, the variation of the population age structure mainly depends on the births and deaths. According to the variation of births and deaths since the foundation of the People's Republic of China in 1949, the birth rate had remained between 32 and 43‰ in the 1950s and 1960s, except the special period from 1958 to 1961. The birth rate evidently declined in the 1970s and dropped from 34.11‰ in 1969 and 17.82‰ in 1979, approximately by half in a decade. The birth rate maintained around 18‰ in the 1980s. The death rate has generally declined except the period between 1958 and 1961 and kept around 6–7‰ since the 1970s. The age-specific death rate has also declined, especially the death rate of infants. The evolution of births and deaths directly decides the variation of the total population's age structure. For instance, the evolution of the age structure is shown as Fig. 2.1 according to the census in 1953, 1964, and 1982.

As shown in Fig. 2.1, the population age structure in 1964 tends to be younger compared to the population age "pyramid" in 1953; and the proportion of the population aged from 0 to 14 had grown from 36.3 to 40.4 %, the proportion of the population aged from 15 to 64 had declined from 59.3 to 55.9 %, and the proportion of the population older than 65 had declined from 4.4 to 3.7 %. The age structure will continue to be younger until the early 1970s. The age structure of 1982 varied greatly from 1964. In 1982, the population of youngsters evidently decreased, and the population aged from 0 to 14 had declined to 33.5 %. Despite the slight decrease of the population aged between 35 and 39 and between 40 and 44, the population aged from 15 to 64 had risen to 61.6. The population aged above 65 had grown to 4.9 %. The age structure began aging.

Demographers have different opinions on the standards for the division of age groups. Formerly, a Swedish demographer Sundberg adopted the "three-division method" and regarded the people aged above 50 years as the elderly population. Afterwards, Edward Rosset from Poland proposed that people aged above 60 years were the elderly, which can be further divided into near elderly, initial elderly, and complete elderly. The United Nations executed a dual standard that the youngster age structure refers to a structure with a proportion of the population aged above 65 lower than 4 % or a proportion of the population aged above 60 lower than 7 %; the adult age structure refers to a structure with a proportion of the population aged above 65 between 4 and 7 % or a proportion of the population aged above 60 between 7 and 10 %; and the elderly age structure refers to a structure with a proportion of the population aged above 65 higher than 7 % or a proportion of the population aged above 60 higher than 10 %. In recent years, some demographers divide the age structure into three types, respectively with the proportion of the elderly aged above 65 lower than 5 %, between 5 and 10 %, and above 10 %. Kuroda Toshio from Nihon University proposed the new standard of the proportion of the elderly aged above 65 of respectively lower than 7 %, between 7 and 10 %, and above 10 %, which adapts more to the objective situation of the population aging. The author considers that China's age structure is between the final stage of the youngster structure and the initial adult structure according to the practical situation of China and the some international division standards. For the basic characteristic, on one hand, the youngster accounts



1953年 1953  
 1964年 1964  
 1982年 1982  
 男 Male  
 女 Female  
 岁 Age

资料来源：《中国1982年人口普查资料》，中国统计出版社1985年版，第272-283页。  
 Date source: *National Census Data of China 1982*, China Statistical Publishing House, P272-283

**Fig. 2.1** The population age composition of China

for a large proportion, and the median age in the 1982 census was only 22.9, which will constantly grow in later years; and on the other hand, the population structure initially shows the trend of aging and will rapidly develop to a high level of aging. See the variation of the overall age structure in the future in Table 2.3.<sup>11</sup>

<sup>11</sup>Tian Xueyuan, as the chief editor, Wu Cangping and Lu Zhiqiang, as the associate editor, *The Population and Employment of China in 2000* (Internal Research Report).

**Table 2.3** The forecast for variation of the overall age structure in year 1990 to 2050 (unit: %)

Year	Low-level estimation			Medium-level estimation			High-level estimation		
	0-14	15-64	Above 65	0-14	15-64	Above 65	0-14	15-64	Above 65
1990	24.6	69.6	5.8	26.0	68.4	5.6	27.1	67.4	5.5
2000	21.9	70.9	7.2	24.3	68.8	6.9	25.7	67.5	6.8
2010	20.1	71.7	8.2	20.7	71.4	7.9	21.2	71.2	7.6
2020	19.8	69.0	11.2	20.8	68.6	10.6	21.5	68.3	10.2
2030	19.2	66.4	14.4	20.1	66.4	13.5	20.6	66.5	12.9
2040	19.3	61.9	18.8	19.3	63.3	17.4	19.5	64.0	16.5
2050	20.1	62.6	17.3	20.5	63.5	16.0	20.8	63.9	15.3

As shown in Table 2.3, by 2040, the proportion of the youngster aged from 0 to 14 will gradually decline to 19.3 % according to the medium-level estimation, 14.2 % lower than the census in 1982. The proportion of the adults aged from 15 to 65 will rise at first and then decline according to the medium-level estimation, growing from 61.6 % in 1982 to 71.4 % in 2010 and then declining to 63.3 % in 2040. The proportion of the elderly aged above 65 will significantly grow from 4.9 % in 1982 to 17.3 % in 2040 according to the medium-level estimation, demonstrating a rapid development of aging.

Though the overall population shall be primarily taken into consideration for the research on the variation of the age structure, more importance shall be attached to the differences between the urban and rural age structures and the age structures of different regions. According to the census in 1982, villages take up the highest proportion of the population aged from 0 to 14, as high as 35.37 %, towns take up the second place, 28.31 %, and cities occupy 26.01 %. The proportion of the adults aged from 15 to 64 is different, while the cities, towns, and counties, respectively, take up 69.31, 67.48, and 59.63 %. For the proportion of the elderly aged above 65, the counties, cities, and towns, respectively occupy, 5.00, 4.68, and 4.21 %. Regarding different areas, Shanghai, the biggest city, ranks the first in the proportion of the elderly, while Beijing and Tianjin also lead other cities. The median age in various regions can reflect the characteristic of the age structure in these places. According to the census in 1982, the national median age was 22.91; the median age in Shanghai was the highest, 29.23, followed by Beijing at 27.20; and the median age in Ningxia was the lowest, 18.42, followed by Qinghai at 18.54.<sup>12</sup> Generally speaking, the regions of higher population density and more rapid decline of birth rate are featured with comparatively higher proportion of the elderly and higher median age. On the contrary, the regions of lower population density and slower decline of birth rate are featured with a comparatively higher proportion of the youngster and lower median age. Therefore, the differences on the age structure in

<sup>12</sup>Data source: *National Census Data of China 1982*, China Statistical Publishing House, P314-319.

different regions are corresponding to the geographic distribution, as the median age and the proportion of the elderly gradually increases from the northwest to the southeast and the degree of the population aging shows a staircase distribution.

### ***2.4.2 Variation of the Working Age Population and the Employment Development Strategy***

Regarding the influence of the population age structure on the macroeconomic development, the primary is the influence of the variation of the working age population on the employment development strategy. From the population perspective, the working age population accounts for the largest part and is greater than the population of the youngster and elderly. The working age people are the producers and consumers at the same time. They do produce not only the wealth they consume but also the wealth consumed by the youngster and the elderly, so they are considered to be the dominating group of the overall population. From the economic perspective, the production stands first compared to exchange, distribution, and consumption, because it decides the content, essence, and method of the exchange, distribution, and consumption. Employment links this group of people with the production and reflects the essence of the relation between the population and the development of the national economy. The development strategy of employment shall concern these two aspects.

As mentioned above, the proportion of the working age population aged from 15 to 64 will constantly increase by about 2010 according to the medium-level estimation. The absolute number will increase in a longer period, from 683 million in 1985 to 765 million in 1990, 858 million in 2000, 956 million in 2010, and the peak of 980 million in 2015; and then the absolute number will slowly decline, from 977 million in 2020 to 930 million in 2040. Therefore, the working age population, as well as the quantity of labors, will significantly grow within the next three decades by about 300 million, and then it will decline slightly, but maintain above 930 million in another three decades after 2015, 250 million more than 1985. The rapid expansion of the working age population will exert a huge influence on the labor employment and raise the new subject of employment. The focus of the employment strategy shall be transferred in order to consider the needs of the development of the socialist modernization.

Firstly, the focus of the employment strategy shall be transferred from the cultivation industry to diversified economies and urban industry and commerce. In the past 30 years, the employment of the newly increased population mainly relied on agriculture, especially the cultivation industry. Though the situation had slightly changed since the 3rd Plenary Session of the 11th Central Committee, the quantity of labors engaged in farm, forestry, animal husbandry, fishery, and



water conservancy had exceeded 311.87 million by 1985, accounting for 62.52 % of the total number of social numbers (498.73 million). As a result, the labor productivity of the agriculture, especially the planting industry, is low, and the area of the arable land for each agricultural labor has greatly decreased, which in 1982, only accounted for half of the area in 1949 and is still decreasing. Despite the great increase of the total output of grains, the grains produced by each peasant have not significantly increased. In addition, regardless of the considerable growth of agricultural production value, the net value created by each agricultural labor has not grown rapidly. According to the medium-level estimation, the working age population aged from 15 to 64 will increase by 175 million in 2000 and 273 million in 2010, compared to 1985. It will not work if most labors are involved in agriculture and more than half of labors are working in the planting industry. Therefore, it is necessary to prevent the newly increased working age population from working in the planting industry and transfer some agricultural labors to other industries. One way is to transfer from the cultivation industry to diversified industries. China is featured with favorable conditions for the development of forestry, animal husbandry, sideline production, and fishery, based on the 59 % of plateau and mountains (including the alpine pasture), 30 % of basins and plains, 9 % of hills, and 2 % of freshwater areas that cover China, totaling around 14.4 billion mu<sup>13</sup> of land. The second way is to develop the township commerce and industry and facilitate the population urbanization. The vigorous development of township industries in Jiangsu and Zhejiang has provided precious experiences and demonstrated that the development of the township industries is an important method for the prosperity of peasants and the effective way for the transfer of rural labors. Actually, some developed countries had experienced the decline of the proportion and absolute number of agricultural labors in their agricultural modernization. From 1955 to 1975, the United States had seen a decline of rural labors by half, and Japan had seen a decline by more than a half. Other developed countries had similar experiences. Currently, the agricultural labors in France and Germany account for less than 10 % in their countries, while the figure in the United States and the United Kingdom is below 3 %. The transfer of the rural population is still undergoing in these countries. The population urbanization is the only way to the solution of the employment of the newly increased population in the future. The present task is to vigorously develop small towns and the township commerce and industry.

Secondly, the focus of the employment strategy shall be transferred from the industrial and agricultural material production to the nonmaterial production. Over the years, China has experienced a slow growth in the number of employees in non-material production. In addition, more than half of the newly increased working age population has entered agriculture, which has contributed to the overly high proportion of the number of employees in the material production and the overly low

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<sup>13</sup>Translator's note: mu, a traditional unit in China, equals to approximately 666.67 m<sup>2</sup>.

proportion of the number of employees in the nonmaterial production. As a result, more labors still enter some production sectors and enterprises at full capacity, leading to low production efficiency. These enterprises of low efficiency and low-level technical composition are flexible in the absorption of labors based on their own wills. This situation seriously inhibited the application of new technology and blocked the reproduction based on the internal expansion, so it must be changed. From now on, the employment of the newly increased working age population shall mainly rely on the service sector and the tertiary industry instead of the production, which is also the necessary trend of modernization. Currently, the ratio of the employees in the material production and nonmaterial production respectively reaches 1:1 in developed countries, while the United Kingdom reaches 1:1.5 and the United States reaches 1:2.3, where the number of "white-collar workers" tends to exceed the number of "blue-collar workers." In the face of the trend of significant growth of the working age population in following decades, the transfer of the employment strategy focus to the nonmaterial production will not only facilitate the solution to the employment of the newly increased working age population but also improve the labor productivity of the material production and the rapid development of the national economy.

Thirdly, the focus of the employment strategy will transfer from the improvement of the employment rate to the improvement of the employment efficiency. China has applied the policy of low wage and more employment for a long time. On one hand, the high employment rate reveals that the best has been made of labor resources. On the other hand, it also reflects the low actual utilization of labors and the poor employment efficiency. For example, the growth of the total industrial value owned by the entire population in the 1st five-year plan period, between 1963 and 1965, and in the 5th five-year plan relied mainly on the improvement of the labor productivity, while the growth in the 2nd, 3rd, and 4th five-year plans period mainly relied on the increase of the quantity of labors. The labor productivity even saw a negative growth in the 2nd and 3rd five-year plans. Therefore, China mainly relied on the increase of the quantity of labors instead of the improvement of the production efficiency for the reproduction for many years. Due to the sharp increase of the working age population in the next two or three decades and the increasing pressure on employment, the contradiction between the employment rate and the employment efficiency will be more prominent. The general guiding thought is to take both aspects into consideration and gradually transfer the strategy focus from the full employment in previous times to improvement of the employment efficiency. Among the strategic choices of the full employment, comparatively full employment, rational employment, and insufficient employment, the author tends to choose the comparatively full employment and rational employment, which means to try to expand the employment and reach the comparatively full employment based on the constant improvement of the employment efficiency, or at least without lowering the employment efficiency. The emphasis on the full employment without giving consideration to efficiency or the focus on the employment efficiency regardless of the sharp increase of the working age population does not adapt to China's variation of the age structure and the modernization.

### 2.4.3 *The Trend of Population Aging and the Reform of the Social Security System for the Elderly*

For the study on the variation of the age structure and the strategy of the macroeconomic development, high importance shall also be attached to the research on the variation of the elderly population and the social security for the elderly, in addition to the relation between the working age population and the development strategy of employment. Though the aging degree varies in the above three levels of estimation, the absolute quantity of the elderly in the following 60 years is the same, because the quantity is calculated by the number of each age group above 0, deducting the deaths of each age group every year. The quantity of the elderly aged above 65 in 2010 will exceed 100 million, doubling the quantity of 50 million in 1982; the quantity will double the number in 2010 and reach 200 million after 20 years; and the quantity will reach the peak of 260 million by 2040, which is 200 million more than the elderly population in 1982. It shall also be pointed out that besides the rapid aging of the total population, China also sees a trend of super aging (more and more people are growing even older than 65) and a further aging trend of the elderly. The formula for the calculation of the median age of the population

$$X_{md} = X_i + \frac{\sum_x P_x - \sum_0^{md-1} C_x}{P_{md}} \cdot d$$

can be utilized to calculate the median age of the elderly. The median age of the elderly aged above 60 years according to the medium-level estimation develops from 67.6 in 1982 to 67.7 in 1990 and 68.3 in 2000; slightly decreases after 2000 to 68.2 in 2010, 67.9 in 2020, and 67.8 in 2030; and rapidly grows after 2030 to 69.7 in 2040 and 70.4 in 2050. It is evident that the variation of the median age of the elderly population is mainly affected by the number of births in history, especially the surge in births from the mid-1960s to early 1970s. When the people born in this period enter the high-age group, the median age of the elderly grows along with it. More attention needs to be paid to the variation of the median age of the elderly, i.e., the super aging trend, in the study on the aging problem, because the elderly aged above the median age and those aged below the median age vary greatly in their physical and intellectual ability and therefore show great difference in their life independence. So, this problem shall be taken into the consideration for the solution to the aging problem.

Aging is a common trend of the world population development, as a symbol of the economic, scientific, and technological progress and the life extension of human beings. Moreover, in terms of the population reproduction, a certain degree of aging is necessary for the transformation from the growing population to the stable population and the long-term population planning. Though a positive attitude shall be adopted for the aging problem, the problems incurred by aging shall

not be ignored. China shall prudentially treat the problems, including the clothes, food, accommodation, activities, labors, studies, medical care, marriage, entertainment, and communication of the elderly population, which will grow four or five times in the future. Among all these problems, the priority shall be given to providing the elderly with security, as the basis for the solution to all these problems.

Security is the basic problem for all elderly people. Everyone after they enter old age needs "security" regardless of sex, nationality, race, regional distribution, or location (i.e., in rural or urban area). Security is the basis for the everyday life and activity of the elderly, especially for China. China is still at a low economic development level, consumption level, the stage of adequate food and clothing among the four stages: hunger, adequate food and clothing, well off, and prosperity. China can only reach the well-off level by the end of the twentieth century and is impossible to reach a high level in the 2030s or 2040s. Therefore, it is an essential task to ensure the security for the elderly in the long term.

The old-age insurance in China can be generally divided into two methods: firstly, employees of state organizations, state-owned enterprises, most enterprises of the collective ownership in cities and towns, and a few enterprises of the collective ownership in rural areas that draw their pension regularly; secondly, most peasants, handicraftsmen of the individual ownership in cities and towns, and a few employees from the enterprises of collective ownership that rely on the support from their children and social relief since they have no pension. According to the current division of jobholders, the former accounts for about 30 %, while the latter accounts for about 70 %. Without a doubt, it is a huge social progress that 30 % of social labors can receive the pension and obtain reliable security for their old-age life and people living in difficulties without pension can obtain social care, compared to the Old China when masses of working people struggled to survive and had no security for their old-age life. However, the acute contradiction can be found between the current social security system and the aging of the age structure. The first is the contradiction between the current social security system and the sharp increase of pension. The total fee on the labor insurance and welfare incurred on units of the whole-people ownership in 1952 was 950 million yuan, accounting for 14.0 % of the total wage, which has increased to 26.68 billion yuan (by 27.1 times) in 33 years, accounting for 25.1 % of the total wage. The fees on the labor insurance and welfare include funerals, medical care, and subsidy to the poor, but the pension takes up the most, as high as 42.1 % in 1985. Along with the trend of aging, the significant increase of the quantity of the retired and the increase of the pension for each employee, the pension provided by the government will increase by more than two times until 2000, and then by another ten times than the figure in 2000 until 2030. The proportion of the pension in the total wage will also sharply grow and exert huge financial pressure. Generally, the alarm level for the proportion of the fees on the elderly population among the national income is 25 %, and serious difficulties will arise if the proportion exceeds the alarm line (e.g., some western European and northern European countries). The second is the contradiction against the scientific and technological progress. At present, the pension for employees is provided by units, which is a heavy burden for enterprises of aging

staff, equipment, and products and severely obstructs the upgrading of fixed assets and technological progress. For the whole society, it is not conducive to personal saving and state fund-raising and impedes the expansion of investment and technical improvements if the staff can obtain pension without paying any money. The third is the contradiction against narrowing the gap between rural and urban areas. The rural elderly suffer from a lower living security and more security problems. The fourth is the contradiction against the family planning and control of population growth. Most labors, especially masses of peasants, have no security for their old-age life, so they raise children to provide for them and regard the more children, the better. The fifth is the contradiction against the trend of smaller families. Owing to China's tradition of respecting and raising the old, families with three generations together are very common in China. However, along with the development of the commodity economy, changing of jobs, growing population flow, and changing traditional concept, the proportion of families of only an elderly couple or only an aged widow or widower has increased, raising a pressing requirement on the social security for the elderly.

The fundamental way to solve the above contradictions is to ensure the basic principle for the social security of the elderly and actively promote the reform. Strategically, on one hand, China shall carry forward the fine traditions of respecting, loving, and supporting the elderly and giving full play to the traditional methods of caring for the old, and on the other hand, China shall gradually adopt the social security for the whole elderly population and reform the social security system along with economic development. The specific method is to collect the funds for the elderly from individuals, their units, and the government two or three decades before their retirement or right since they begin their work and then distribute the money after their retirement. This is a fairly meticulous and complicated task. It took the United States several decades to complete the reform, from the establishment of elderly annuity in the Franklin D. Roosevelt administration, the new establishment of the testament annuity and disability annuity to the provision of rules that the annuity floats along with the wage and commodity prices. China shall start the reform immediately and formulate and implement the strategy as early as possible in order to finish this work before the arrival of the seriously aging population.

#### ***2.4.4 Variation of the Dependency Ratio and the Speed of Economic Development***

The variation of the dependency ratio, i.e., the ratio of each working age person to the minority and elderly supported by each working age person, is a very important problem for the study on the influence of the variation of the age structure on the macroeconomic development. According to the above estimation, the proportion of the working age population aged from 15 to 64 will constantly grow until around 2010 and then slowly decline, directly leading to the decline of the dependency ratio

and a slight improvement after 2010. According to the medium-level estimation, the dependency ratio was 62.3 % in 1982, 46.2 % in 1990, 45.3 % in 2000, 40.1 % in 2010, 45.8 % in 2020, 50.6 % in 2030, 58.0 % in 2040, and 57.5 % in 2050. This illustrates that, despite the rapid increase of the absolute quantity of the elderly and the rapidly growing proportion of the elderly, the dependency ratio will decline in the future after the deduction of the quantity of the youngster and the decline of the proportion of the youngster. Though the dependency ratio will rebound after 2010 and 2020, the dependency ratio will be lower than the current level even when it reaches the peak of 58.0 % in 2040.

This is an attractive variation of the age structure and proposes an important question for the research on the relation between the population and economic development, how to evaluate the influence of the decline of the dependency ratio on the development of the national economy. Academic circles have different opinions on this question, but the author believes that the significant decline of the dependency ratio provides a favorable condition for the development of the national economy; its advantages far outweigh the disadvantages and China shall take the responsibility of the “golden age” of the age structure to facilitate the economic development. What are the grounds for this development? Firstly, the significant decline of the dependency ratios comes along with the growing aging trend of the population, which demonstrates a more rapid decrease of the quantity of the youngster and more rapid decline of the proportion of the youngster, so the government can save a great sum of money from the consumption of the youngster. According to estimates, the government can save at least 10 billion yuan each year after 1990 and save hundreds of billions of yuan in the next two or three decades. This sum of money can be utilized to develop the production and improve the technical equipment, which will play an important role in realizing the goal of quadrupling the total output value of industry and agriculture and facilitating the four modernizations.

Secondly, the historical and dialectical analysis on the significant growth of the working age population is necessary. Due to the great pressure on employment currently and in the future, China has to facilitate the transfer of the strategic focus of employment. It will be better if the working age population stops the growth or starts to decrease owing to the prominent contradiction against the expansion of employment and the improvement of the employment efficiency. However, the total population will definitely grow based on the current young age structure and the trend of growth, and the working age population will irreversibly grow even more rapidly. China can only slow the growth rate of the total population by reducing the fertility rate and therefore reduce the quantity of the working age people and their proportion. The government shall control the population growth and meanwhile square up to the basic trend of the growth and make the best of the working age population. In fact, the experiences of modernization of countries and regions, especially those from Asia, such as Japan and Singapore, prove that it is an important condition for the rapid economic growth to make full use of cheap labors and thus improve the competitiveness of products. In this sense, the significant decline of the dependency ratio in the future two or three decades, the large working age population and small proportion of the youngster and elderly will provide a favorable

condition to facilitate the development of the national economy and realize the goal of quadrupling the total output value of industry and agriculture. China shall seize the opportunity of the variation of the age structure, gain experiences, and draw lessons from China's previous story, adhere to reform, opening up, and invigorating the economy, fully explore the rich labor resources, and make scientific use of them to give full play to them in the construction of modernization.

## **2.5 Report on the Sample Survey of the Family Economy and Childbirth in Ten Provinces and Municipalities of China in 1992<sup>14</sup>**

The sample survey of the family economy and childbirth of China in 1992 again proved the general conclusion that economic development is the path towards birth control.

### ***2.5.1 Background and Program Design***

1. According to the CPR/90/P06 agreement reached by the Chinese government and the United Nations Population Fund, the Institute of Population of the Chinese Academy of Social Sciences led the sample investigation of the family economy and childbirth of ten provinces and municipalities in 1991. They completed the work in the first half of 1992 based on coordination with the Institute of Population of Hebei Academy of Social Sciences, Liaoning Commission of Family Planning, the Institute of Population of Shanghai Academy of Social Sciences, the Institute of Population of Hangzhou University, the Institute of Population of Shandong Academy of Social Sciences, the Institute of Population of Jiangxi Academy of Social Sciences, the Institute of Population of Guangdong Academy of Social Sciences, and the City Investigation Team of Guangdong Bureau of Statistics, the Institute of Population of Shaanxi Academy of Social Sciences, the Institute of Population of Sichuan Academy of Social Sciences, and the Institute of Economy of Guizhou Academy of Social Sciences. The author, as the project director, proposes this report according to the preliminary summary of statistical materials.
2. By the end of the 1980s, the second stage of the United Nations' aid to China Population Fund will come to a close and the third stage will begin, and China

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<sup>14</sup>This article was originally the thesis of the International Symposium on China's Family Economy and Childbirth held in October 1993. Tian Xueyuan as the chief editor, Hu Weilue and Liu Qiming as the associate editor, *Report on the Sample Survey of the Family Economy and Childbirth in Ten Provinces and Municipalities of China in 1992* (as the preface), China Economic Publishing House, 1995.

will go through reform and opening up for the next 10 years. China experienced the most rapid economic development in this special period of 10 years after 1949, with its people benefitting a great deal. Though the establishment of the socialist market economy system was not confirmed at that time, China was directing the market economy in the wave of the commodity economy upon the rural household contract responsibility system with remuneration linked to output and the rapid development of the exclusively funded, jointly funded, and foreign-funded enterprises. This situation exerted direct influence on the development of the national economy; showed profound impact on the material, cultural, and spiritual life of the whole society; and showed increasing influence on population production. In order to explore the new influence of economic development in the new situation on the population production, it is necessary, and meanwhile difficult, to propose the new idea on the population growth control in terms of the family economy and childbirth, and at the same time, it is necessary to investigate and absorb the rational parts of the western micropopulation economics and thus to promote China's studies on this subject. Therefore, the project of "research on China's family economy and childbirth" was chosen. As required by the project program, the sample investigation on China's family economy and childbirth began after the theoretical preparation, project proof, and the invitation of foreign experts to hold the workshop.

3. The program design of the sample investigation of the family economy and childbirth can be divided into five levels.<sup>15</sup>
  - (a) Sampled population. According to the focus of the topic, 25 provinces, autonomous regions, and municipalities directly under the central government are chosen as the sampled population, excluding the five provinces and regions of Inner Mongolia, Xinjiang, Tibet, Qinghai, and Hainan where the minority nationalities are concentrated. A total of 283,339,184 households were under investigation in 1991. The households in suburbs were excluded (since rural households are not included in the urban samples), so the actual total number of sampled households amount to 223,908,687.
  - (b) Hierarchical clustering. The investigation was divided into four layers, including the city, town, developed county, and underdeveloped county. Nonagricultural households were investigated in cities and towns, while agricultural households were investigated in counties. For the convenience of the investigation, the 25 provinces, municipalities, and regions were clustered into five types according to seven indicators, including the per capita national income, per capita agricultural income, per capita urban consumption, per capita rural consumption, proportion of the urban population, total fertility rate (TFR), and the literacy rate for women. The five types of regions include the following: the highly developed, including

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<sup>15</sup> According to the work division of the topic group, Gao Jialing, the associate researcher, is responsible for the program of the sample investigation. The Parts (3) and (4) of the report mainly refer to the article of *Program of the Sample Investigation of the Family Economy and Childbirth in China*.



Beijing, Shanghai, Tianjin, and Liaoning; the sub-developed, including Guangdong, Jiangsu, Zhejiang, and Fujian; the generally developed, including Heilongjiang, Jilin, Shandong, and Shanxi; the less developed, including Hebei, Hubei, Hunan, Sichuan, and Shaanxi; and the underdeveloped, including Anhui, Jiangxi, Henan, Guangxi, Guizhou, Yunnan, Gansu, and Ningxia. The investigation was conducted on the four layers for every province, municipality, and region.

- (c) Multistage sampling. The multistage cluster sampling of unequal probability is adopted. In the first stage, the sampling on provinces shall be completed based on the clusters, and two provinces or cities are chosen according to the  $\pi$ PS sampling (the sampling proportional to the population size of unequal probability without replacement), including Shanghai and Liaoning for the developed, Guangdong and Zhejiang for the sub-developed, Sichuan and Shaanxi for the less developed, and Jiangxi and Guizhou for the underdeveloped. Since Jilin cannot be included in the investigation, Hebei is chosen instead, since it is the same type as Jilin. In the second stage, two cities, two developed counties, and two underdeveloped counties are chosen from the ten sampled provinces and municipalities based on  $\pi$ PS sampling, and two towns are randomly chosen from the four places of the county governments. In the third stage, streets, villages, and towns are chosen from the sampled cities and counties based on PPS sampling (the sampling proportional to the population size of unequal probability with replacement). The PPS sampling is also applied in the fourth stage to draw the neighborhood committees and village committees from the sampled streets, villages, and towns. In the fifth stage, the households surveyed will be drawn from the sampled neighborhood committees and village committees.
- (d) Allocation of the sample size. In consideration of the requirements by the subject design and the comparability among the ten provinces and municipalities, 1,400 households are investigated for each province or municipality, including 500 households in urban areas, 300 in towns, 300 in developed counties, and 300 in underdeveloped counties. For the convenience of the weighting treatment of these provinces and municipalities, the samples will be equally allocated for  $\pi$ PS and PPS methods, and 20–30 households are investigated for each neighborhood committee or village committee.
- (e) Two-phase investigation. In order to improve the response rate of the questionnaires, the two-phase investigation will be conducted instead of the investigation for any drawn household that cannot completely answer the questionnaire for any reason. This means to exercise the group investigation in the neighborhood committee or village committee and find out the proportion of the drawn households that satisfy the investigation requirements, and then draw the sampled households among those that satisfy the requirements. The same method can be applied at every level, in order to constitute the whole population for the investigation of the municipalities, provinces, and the state. In practice, the two-phase investigation only accounts for a limited proportion since the basic requirements of the sampling investigation have been fully considered in the program design in various regions.

4. Design effect and precision. As a multistage and complicated sampling, this investigation cannot pursue the precision simply by putting figures into the formula. For the design effect,  $d$  equals to the ratio of the actual variance of the complicated sampling to the variance of the simple and random sampling under the same sampling size. The design effect for the multistage sampling of empirical data is 2–3, so the precision shall be calculated based on the formula for the simple and random sampling. Regarding the calculation results of the investigation, the nationwide precision for the deduction reaches approximately 98 %; the precision for the investigations of provinces and municipalities reaches about 92 %; and the precision for cities and towns respectively amounts to 80 and 75 %, which decreases from the higher to the lower layer.

### ***2.5.2 Family Economy and Birth Rate***

5. Among the western population theory, the theories on birth rate are featured with the most publications, fiercest arguments, and most profound influence. Generally, the theories on birth rate can be divided into two schools of thought: the school of economics and the school of sociology. The former believes that economy decides the variation of the fertility rate, while the latter emphasizes the influence of social factors including the nation, culture, status of women, and social structure on the decline of the fertility rate. The author considers both economic and social factors contribute to the variation of the fertility rate, but they play different roles. The economic factors decide the origin, while the social factors show a more direct influence. The more important question is the relation between the economic and social factors. An important reason for the fierce argument between the two schools lies in that they emphasize the roles of economic or social factors in the variation of the fertility rate (mainly the decline of the fertility rate), but seldom study on the mutual relation. The author postulates that the basic characteristics of the social factors are fundamentally decided by the economic factors, i.e., the economic development level and the structure of the economic structure. From the macroscopic perspective, the cultural quality of the population of a country relies on the development of the national economy and the specific economic structure. From the microscopic perspective, the education background of the family generally conforms to the income level of the family, economic structure of the family, and the nature of the adults' occupations. Therefore, the sampled investigations in the 10 provinces or municipalities in 1992 tried to make breakthroughs by placing the emphasis on the relation between the family economy and the fertility rate.
6. Family is a social unit based on marriage, blood, or adoptive relationship. Families need the economic force to carry on, so the economic behaviors of the family exist once families exist. Further research is needed on how to divide the types of family economy under different historical conditions. The author believes it can be generally divided into the productive or nonproductive family

**Table 2.4** Per capita income of the family and the childbirth of women of the whole country in 1991 (weighted summary)

Monthly per capita income	Number of children	Age at the first marriage	Age at the pregnancy
121	2.13	22.05	23.15
0-25	2.64	21.39	22.65
26-50	2.55	21.16	22.17
51-75	2.43	21.34	22.39
76-100	2.14	22.09	23.25
101-200	1.91	22.79	23.88
201-300	1.95	22.79	23.99
301-400	1.84	22.09	23.01
401-500	1.59	21.74	22.72
Above 501	1.93	22.79	23.57

Note: The table shows the average number of the whole country

economy. The productive family economy consists of the production, exchange, distribution, and consumption, as a microcosm of the whole social production. The self-sufficient natural family economy in China's feudal society, the current rural household contract responsibility system with remuneration linked to output, and the individual economy based on the unit of family in urban areas all belong to the productive family economy. The nonproductive family economy refers to when the family's source of income mainly relies on the family members' wages and the family's economic behaviors are mainly consumption. Regardless of the type, the basic two conditions for the healthy economic behaviors of a family refer to a normal income and jobs of the family members. As illustrated by the sampled investigation, the two factors of the family economy are closely related to the birth rate.

7. Though the impact of the per capita income on childbirth is still controversial, in terms of the per capita income, the dominating indicator of the family economy, the theory on the "critical point" is influential. The theory refers to when the per capita income has not reached the critical point, the increase of the per capita income stimulates the childbirth; but when the per capita income exceeds the critical point, it will inhibit the childbirth. However, the sampled investigation unveils that the per capita income is inversely proportional to the birth rate, no matter whether or not the income exceeds the critical point. This means that the lower monthly per capita income leads to a larger number of children on average and an earlier first marriage and pregnancy, while the higher per capita income results in a smaller number of children and a later first marriage and pregnancy. See the weighted summary of the whole country in Table 2.4.
8. The per capita income is a comprehensive indicator for the family economy, but not the unique indicator. Main family members' occupations and industries they are engaged in also reflect the type of the family economy and significantly affect the variation of the birth rate. According to the sampled investigation, among the eight occupations (including professional technical personnel; cadres above the

**Table 2.5** Investigation of the occupation structure of the males aged above 15 years in the entire country and the proportion of them giving birth to a second child (weighted summary)

Occupation	Composition (%)	Proportion of giving birth to a second child (%)
Professional technical personnel	4.6	3.4
Cadres above the middle level	3.7	1.6
Workers of production and transportation	10.5	7.2
Staff	5.0	3.6
Commercial service personnel	3.7	2.0
Individual workers	3.7	4.0
Labors in farm, forestry, animal husbandry, and fishery	47.8	70.2
Other labors	5.7	5.7
No job	15.3	2.3

middle level; workers of production and transportation; staff; commercial service personnel; individual workers; labors in farm, forestry, animal husbandry, and fishery; and other labors), the childbearing outside the family planning and multi-birth many concentrate in the labors in farm, forestry, animal husbandry, and fishery. The weighted summary of the whole country illustrates that the labors in farm, forestry, animal husbandry, and fishery account for 47.8 % of the occupation structure of the male aged above 15 years, and they account for 70.2 % in giving birth to the second child, with an increase of 22.4 % compared to their proportion in the occupation structure. Others generally see the decline in different degrees, especially the cadres above the middle level, who see a decline by 2.6 %. The concentration of childbearing outside the family planning and multi-birth in labors in farm, forestry, animal husbandry, and fishery reveals that the rural areas, especially those with an underdeveloped economy, low-income, and low technical composition, are featured with the low cost and comparatively high efficiency of the marginal child. This is exactly the difficulty and focus for China's population growth control and the implementation of the family planning, which will be further discussed at a later stage (see Table 2.5).

### 2.5.3 Construction of the Cost for Children

9. The most representative scholars on the western theory on the cost–efficiency of child are Professor H. Leibenstein from Harvard University and Professor Gary. S. Becker from the University of Chicago. H. Leibenstein divides the cost of the child into the direct cost and the indirect or opportunity cost. The direct cost refers to the cost of clothes, food, accommodation, activities, medical care, education, marriage, and some other direct expenses incurred from pregnancy to the independency of the child, which is a kind of direct monetary expense, while the indirect or opportunity cost refers to the reduction of incomes of parent, especially the mothers, owing to the loss of the opportunities for

education, promotion or more favorable jobs incurred by the time lost in raising a child, which is an indirect monetary expense calculated based on the shadow price.<sup>16</sup> Gary Becker introduced the theory on the consumer equilibrium and limitation line for the family consumption based on H. Leibenstein's theory. According to Becker, under a certain commodity price and consumption income, there is a best composition and maximum efficiency for any consumer purchasing more than two commodities. The theory can be applied in the cost-efficiency of the child. The limited quantity flexibility and unlimited quality flexibility of the child, as with other durable goods, will push people to pursue the maximum efficiency of the child, thus realize the transfer from the investment on the fixed or quantity cost of the child to the investment on the variable or quality cost and then lower the fertility rate. The sampled investigation of the family economy and childbirth of China in 1992 absorbed scientific findings in their theories, combined the practical situation of China, investigated and mastered the current conditions for the cost of children, and provided scientific basis for the policies on childbirth.

10. The exact statistics on the cost of the child in the sampled investigation needs a further check with other investigations conducted by relevant departments. This report will explain the essence of the cost of the child upon the analysis over the differences in the cost composition in rural areas.
  - (a) The cost of the child varies due to different levels and composition of the family economic income. What exactly is the "cost" of the child? This refers to the investment by the family on the production of the child, including the monetary investment and labor time investment, in other words, the direct and indirect cost. Therefore, it is closely related to the capacity of the investment, i.e., the level and composition of the economic income. According to the nationwide weighted summary of the cost of children not attending school and living separately (joining the army, living independently, and married to others) for families at different levels and composition of monthly per capita income, the direct (monetary) cost is proportional to the per capita income. The direct cost of the child in families of a monthly per capita income between 301 and 400 is 2.7 times the average level and 7.8 times the families of a per capita income lower than 50. However, no law can be found in the indirect (time) cost, but the indirect cost is generally close to the average level. The child cost also bears some relation to the income source. The direct cost for the child from a family with a nonagricultural income source is 68.8 % higher than a child from a family without a nonagricultural income source; but on the contrary, the indirect cost of the former declines slightly. See the weighted summary of the ten provinces or municipalities in Table 2.6.

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<sup>16</sup>The shadow price refers to a kind of alternative price estimation for products or service and labors without the market price. According to the context, the shadow price here means the price estimation for the time spent on raising the child based on the corresponding price of the market time.

**Table 2.6** The cost of children not attending school and living separately in families of different levels and composition of monthly per capita income of the country (weighted summary)

Monthly per capita income	Direct cost (yuan)	Indirect cost (yuan)
Average	229	11
0–25	79	5
26–50	82	11
51–75	150	10
76–100	144	11
101–200	253	14
201–300	401	13
301–400	620	6
401–500	610	1
Above 500	1,247	19
With nonagricultural income	319	9
Without nonagricultural income	189	13

- (b) The difference in the quality (education) cost of the child. Gary Becker's variable or quality cost of the child mainly includes the expense in medical care and the intellectual investment on education, and the latter is the most important. Whether the education cost can increase along with the increase of income, i.e., whether the family will transfer from the investment on the fixed (quantity) cost to variable (quality) cost, decides whether the fertility rate will constantly decline. According to the investigation, the quality cost on the child's education varies greatly, especially the direct (monetary) cost, while the indirect (time) cost only changes slightly without a certain law. As shown in the weighted summary of the direct monetary cost of the children not attending school and living separately in rural areas, the direct cost for the primary school is 575 yuan, the junior middle school is 677 yuan, senior middle school is 901 yuan, technical secondary school is 969 yuan, junior college is 1,289 yuan, university is 878 yuan, and the postgraduate is 503 yuan. Based on the comparison, the direct cost for the junior middle school only grows slightly compared to the primary school; the cost for the senior middle school and technical secondary school is much higher than the junior middle school; the cost for the junior college is the highest; the university is lower than the junior college; and the postgraduate shares a lower cost than the university. This strange occurrence can be explained from the perspective of the family education cost. Owing to a part of self-financed students, the secondary technical school and the junior college are featured with a significant increase of cost; and as a result of scholarship and financial aid, the family expense on the university and the postgraduate is reduced. The variation of the education cost for rural families tells us that it is not so difficult for rural families to support the children attending junior middle school and university, but it is the most difficult to support the students in the senior middle school and the technical secondary school. The difficulty of the rural families lies in the education of the senior middle school.

- (c) The difference of the cost of children of different genres and at different ages. Due to different demands of children in their process of growth, families show various preferences to the gender of children, leading to different cost of children at different ages and genders. According to the sampled investigation, the direct (monetary) cost of children not attending school varies slightly, and the direct cost of children attending school varies greater, and the education cost increases along with the growth of children. The indirect (time) cost varies greatly for babies but shows no significant difference after children begin to attend school. The cost of boys is generally higher than girls. The direct (monetary) cost for children not attending school and living separately in rural areas (national weighted summary) is 229 yuan on average (237 yuan for the male and 207 yuan for the female); and the direct cost for children attending school and living separately is 867 yuan on average (871 for the male and 859 for the female). The indirect (time) cost for the children not going to school and living separately is 11 days (12 for the male and 10 for the female); and the indirect cost for children attending school and living separately is 15 days on average (20 for the male and 4 for the female). The direct or monetary cost and the indirect or time cost of the male are both higher than the cost of the female, which reflects families' preference in gender. It is also evident that the difference of the cost of children of different genders and the families' preference over one gender are becoming smaller. This reveals that more and more families have begun accept the idea of equality between men and women.
11. The above differences in the cost of the child are the summary of the findings in the investigation and reveal the different sides of the level and structure of the cost of child. However, the cost of the child is constantly changing, along with economic development, technological progress, and the upgrading family concept, so the anticipated cost of child, as an important variable, exerts direct influence on the variation of the birth rate in the future. This sampled investigation has taken this into consideration and obtains the data that will influence the anticipated cost of the child from various aspects. The basic trend of the cost of child in the future, especially the direct (monetary) cost, can be figured out from the analysis on these statistics.
- (a) The trend of the extended period for raising children. According to the nationwide weighted summary, 15.0 % of families raise the children until they grow to 19, 65.2 % raise their children until they are between the ages of 19 and 24, and 16.8 % of families support the children until they are age 25 or above. It can be seen that most families choose to support the children until they are age 19 or above.
- (b) The trend of increasing education and quality cost of children. The nationwide weighted summary divides the education of children into eight levels, including the primary school, junior middle school, senior middle school, technical secondary school, junior college, university, postgraduate, and no requirement, which respectively account for 12.4, 5.0, 18.8, 18.4, 9.8, 6.9,

25.7, and 3.0 %. The highest proportion is the postgraduate, followed by the senior middle school and the technical secondary school. This demonstrates that though the current irrational benefit allocation between the physical and mental jobs under the current market economy affects some families' intellectual investment and incurs the loss of students of the primary and middle school, where parents hope that their children can receive a higher education and gain a brighter future. This situation inspires the transfer from the investment on the fixed (quantity) cost of child to the variable (quality) cost.

- (c) The trend of complete independency of a child is clearly proven by making achievements and establishing a family. According to the weighted summary, 18.9 % of families expect to raise children until they have labor capacity, 37.3 % expect to raise the children until they obtain jobs, and 43.9 % have no consideration to the time period of raising children. Therefore, people are no longer satisfied with the low standard of raising children until they have the labor capacity, but aim to raise children until they acquire proper jobs. Respectively 6.6, 20.0, 59.6, 4.4, and 9.5 % of families expect to raise children until the engagement, marriage, giving birth to a child, a longer time, and no expected period in the investigation. It is evident that most people will support their children until they either establish their families, give birth to their own children, or an even longer time.
12. The population policy has played a crucial role in lowering the fertility rate since the 1970s. Though the policy mainly relies on propaganda, education, and ideological work, it is also necessary to adopt the economic measures to constitute the additional social cost and social benefits of the child. The sampled investigation in 1992 also takes this point into consideration. According to the general weighted summary of the country, the average fine on the second child is 870 yuan on average, equal to 62.1 % of the per capita national income of 1,401 yuan in 1991, which, truthfully, was not high. The fine on the third child would be higher, but was collected in a lump sum and only accounted for less than 30 % in the total direct (monetary) cost of child. Without a doubt, the fine on the child born outside the family planning and the direct (monetary) cost of the marginal child will change the adverse decline of the cost–efficiency of child to some degree, but it is still far from enough. Reform is needed for the future.

### ***2.5.4 Comparison of the Efficiency of the Child***

13. Based on both domestic and foreign discussions, children's efficiency for the family can be concluded in the following six aspects:
- (a) Labor–economic efficiency. After the child has become a labor, he or she can find a job and increase the economic income of the family as a family member.



- (b) Old-age insurance efficiency. Particularly in developing countries without developed social old-age security, children are responsible for supporting the elderly.
  - (c) Consumption–pleasure efficiency. The special “durable consumer goods” (children) can meet the spiritual demands of parents and bring love to the family.
  - (d) Extension–expansion efficiency. Children will carry on the family line and expand the family.
  - (e) Inheritance-risk efficiency. Children will inherit the parents’ heritage, decide the family status of the next generation, and bear certain risks.
  - (f) Other efficiencies such as safeguarding and protection efficiency.
14. This sampled investigation designed the questionnaire that incorporates the efficiencies mentioned above and obtained complete data. The followings are the most prominent problems and most closely related to the current population control.
- (a) The composition of children’s efficiency. According to the nationwide weighted summary, children’s labor–economic efficiency accounts for 17.6 %, the old-age insurance efficiency accounts for 20.5 %, the spiritual pleasure efficiency is 24.2 %, the extension–expansion efficiency is 15.5 %, the inheritance-risk efficiency is 8.5 %, and the other efficiencies (including the safeguarding and protection efficiency) account for 13.9 %. The spiritual pleasure and old-age insurance take up the highest proportion, which is the basic characteristic of the children’s efficiency in developing countries.
  - (b) The efficiency of the family income. Though the proportion of the labor and economic efficiency of children is smaller than the spiritual pleasure and old-age insurance, it still plays a very influential role, especially in rural areas. According to the weighted summary, regarding the family efficiency provided by children not attending school and living separately in rural areas, an annual economic efficiency of 47 yuan is provided for families with a monthly income lower than 25 yuan, 90 yuan for families with a monthly income of 51–100, 215 yuan for the family income of 101–200, 196 yuan for the family income of 201–300, and 348 yuan for the families with a monthly income of 301–400. The general trend is that in families of higher income, the children provide a higher economic efficiency. Similar to the cost structure, the children of families with a nonagricultural income provide 90 yuan more of efficiency than children of families without a nonagricultural income, and the male provides 46 yuan more than the female, showing an evident difference.
  - (c) Efficiency of the occupation structure. The sampled investigation proves that children of different occupations vary greatly in their family efficiency. In terms of the economic efficiency provided by the children not attending school and living separately in rural areas, the children in the commercial service sector provide the most, as high as 260 yuan per year, followed by

the individual labors, of 216 yuan, then the staff of 125 yuan, and scientific and technical personnel with 140 yuan. The cadres only provide an annual economic efficiency of 50 yuan. Though the economic efficiency is closely related to the capacity of children, i.e., children's income level, it also relates to children's consumption. For example, the labors in farm, forestry, animal husbandry, and fishery that enjoy a low-income level provide a higher economic efficiency for the family.

### ***2.5.5 A Partial View on the Cost–Efficiency of Children and the Reform of the Benefit Adjustment for Population Control***

15. The goal of the investigation and analysis on the variation of the cost–efficiency of the marginal child is to discover the factors contributing to families' decisions on childbirth and therefore formulate a solution. Gary Becker introduced the concept of net cost to explain this problem. The net cost equals the anticipated direct (monetary) cost on a marginal child, adding the indirect (time) cost incurred by parents' loss of time (through the shadow price) and deducting the present value of the anticipated income and labors provided by the marginal child. If the net cost is a positive figure, the marginal child only equals to durable consumer goods, and the family can only acquire psychological efficiency from the child. If the net cost is a negative figure, the marginal child can be considered as durable productive goods that can bring value to the family. Therefore, the family can make the birth decision according to the estimation of the net cost of the marginal child. The indirect (time) cost of marginal children is found to be similar to the labor efficiency provided by the marginal child in the sampled investigation, so the time cost and efficiency are ignored in the calculation of the net cost.
16. According to the results of the cost–efficiency of children in the nationwide weighted summary, the monetary net cost proves positive in cities and starts to turn to the positive figure in villages. For example, for the children living separately in rural areas, families provided children with 139 yuan, and children provided the family with 148 yuan in 1991, with a small difference of only 9 yuan. The labor–economic efficiency of children has declined to a very low level.
17. It shall be noted that based on the comparison between the direct (monetary) cost spent by the family and the monetary income provided by the children, the net cost of the children not attending school, living separately, and engaged in farm, forestry, animal husbandry, and fishery work is  $-50$  yuan, i.e., the efficiency is higher than the cost. This proves that the general net cost of children not attending school and living separately is still negative in rural areas. Because of the low technical composition in farm, forestry, animal husbandry, and fishery, the cost to train these children to be labors is low. In addition, since

the technical composition is inversely proportional to the elasticity of the absorption of labors, the low technical composition will lead to greater elasticity of the labor absorption and greater efficiency, thus generating the negative net cost of the child. The negative net cost will adversely stimulate the birth and contribute to the high birth rate in areas of backward economy and technology and with farm, forestry, animal husbandry, and fishery as the major industry.

18. The fundamental way to change this situation is to develop the economy and promote the technical progress. On one hand, the requirement on the cultural and technical level of labors will improve along with economic development and increasing technical composition, and the increase of the family income mainly relies on the quality of labors instead of the quantity, which will lower the labor-economic efficiency of the marginal child. Moreover, the economic development and the improvement of the labor productivity will accumulate more social wealth, so the government and society are more capable of establishing more old-age security, and labors and families can save more money for their old-age life. Therefore, the marginal child's efficiency of the old-age security will significantly decline. Other efficiencies of children, including the inheritance and risk efficiency, will also decrease to a different degree. On the other hand, the economic development will result in technical progress, and this progress will promote economic development, so the families will know that children can only provide the greater efficiency based on necessary intellectual investment. Then, the cost of the child, especially the education cost, will increase. The decline of the efficiency and the increase of the cost will facilitate the transfer of families' investments from the quantity cost to the quality cost of children and transfer from the pursuit of more births to fewer, but better, births, leading to the constant decline of the fertility rate. The current economic development and decline of the fertility rate of developed countries, as well as successful practices in the areas of rapid economic development and technical progress in China after reform and opening up, have demonstrated the above idea. Economic development is the path to birth control.
19. However, this does not mean to simply leave the population problem to be solved naturally by economic development. As limited by China's population, resources, and economic development level, China needs the "parallel work" to control the population in addition to the "fundamental solution" by economic development. This means that China shall vigorously develop the economy and create favorable conditions for the decline of the fertility rate and meanwhile carefully implement the basic state policy of the family planning and adopt administrative, economic, and legislative measures to practically control the population growth. It is currently very important to stabilize the present policy and draw experiences from the previous successful practices. The stability of the population birth policy is crucial, because any change in the policy may incur adverse results of early birth or birth outside the family planning. China shall combine the successful experiences with the current practices, especially the confirmation of the socialist market economy; promote the experiences including the emphasis by the leaders, responsibility system for the population

goal management, emphasis on publicity and education, contraception and regular service, and the construction of the team and grassroots; and study and solve the new situation and problem and explore the method for the reform.

20. Based on the goal of the economic system reform to establish the socialist market economic system, economic development, promotion of the technical progress, stability of the current birth policy, application of the previous effective experiences, and the results of the sampled investigation of the family economy and childbirth, the author proposes some methods of the reform. The author proposes how to pursue the balance between the cost and efficiency and more effectively control the population growth by adjusting the benefit allocation, as explained below.

- (a) Adjust the benefit allocation between the brain and physical work and encourage intellectual investment. It is now commonly said that “the professor is no better than the vendor” and “the doctor is no better than a hairdresser,” which play a profound influence on the development of the national economy and the modernization construction, meanwhile impeding the population growth control. According to the sampled investigation, the economic efficiency brought by the children not attending school cannot compensate the direct (monetary) cost on the children and the situation worsens for higher education. According to the education division and family economy of children living separately in rural areas, the net cost for illiterates and semi-illiterates is -9 yuan, the net cost for the primary school is -20, the junior middle school is -48, the senior middle school is 78 yuan, and the education of the junior college and above is 227 yuan. The famous Australian demographer J. C. Caldwell stated in his theory of the “wealth transfer between generations” that the wealth will be more likely transferred from parents to children based on more intellectual investment on children. It will severely inhibit the decline of the fertility rate. In order to change the situation, the government shall apply the principle of distribution according to work, increase the benefits for brain work, ensure that the quality cost on children’s education will bring about corresponding or additional economic efficiency, stimulate people to transfer from the pursuit of the quantity to the quality of children, and invest more on the quality cost instead of the quantity cost.
- (b) Give play to the additional efficiency and reform the old-age security. As mentioned above, the additional social cost and efficiency of children have been proved based on the situation of developing countries, especially China. In order to control the population growth with the lever of the cost and efficiency, it is necessary to reduce the cost and increase the efficiency of children born inside the family planning, meanwhile increasing the cost and reducing the efficiency of children born outside the family planning. The cost and efficiency here mainly refer to the additional social cost and efficiency. Currently, the award for the only-child family is 5 or 10 yuan each month, but this small amount can hardly make a significant impact. According to the sampled investigation, the efficiency of the old-age

security accounts for 21.3 % in the children's efficiency structure, which is the main concern of the parents with one child. Directed at the above two aspects, Sichuan Province has carried out the endowment assurance for the only child and the endowment insurance for their parents, which means that the award for the only child will be invested on the insurance against injuries and deaths and transferred to the endowment for the parents 14 years later. This policy has obtained good results as it has solved the present and future problems. Peng Peiyun, the State Council member and Director of the State Family Planning Commission, wrote that "this measure has well combined the family planning and the social old-age security, explored a new way to implement the basic state policy of family planning, and pointed out an effective reform measure for the comprehensive solution to China's population problem." In addition, in order to increase the additional efficiency of the only child and children born inside the family planning, preferential policies can be applied to them in terms of preschool education, school education, medical care, housing distribution in cities, employment in township enterprises, and the "transfer of the household from the rural residence to urban residence," in order to compensate for the loss of efficiency incurred by not giving birth to a second child.

- (c) Increase the cost for children born outside the family planning and change the imbalance of the efficiency. It has been confirmed as a policy to collect the fine on the children born outside the family planning. However, discussion still needs to be on the specific amount of the fine to ensure that the additional cost can inhibit the birth and the families can afford for the fine. According to the sampled investigation, the fine on the 2nd child is less than 900 yuan, but the fine on the 3rd child is almost three times more. However, due to the great economic difference between rural and urban areas and among different regions, it is not required to adopt a universal amount for the whole country. Provinces, autonomous regions, and municipalities directly under the central government shall regulate the scientific amount and collection method of the fine. The "group of the population countermeasures" at the Institute of Demography of the Chinese Academy of Social Sciences had proposed in a 1989 report that the fine should equal to the per capita income level at each location and collect the fine for 14 consecutive years. This plan is feasible according to the sampled investigation. Firstly, the fine is not extremely high and most families can afford it. Secondly, it can change the parents' idea of paying a lump sum to gain the benefits for their whole life and let them realize the heavy cost, therefore inhibiting birth. In addition, the discriminatory policies can be adopted for children born outside the family planning in terms of the preschool education, school education, medical care, housing distribution in cities, employment in township enterprises, and the "transfer of the household from the rural residence to urban residence" if under the same conditions, in order to reduce their efficiency for the family and change the current unbalance.

- (d) Change the outlook on childbirth and reform the fatherhood tradition. According to this sampled investigation, the spiritual pleasure and the old-age insurance account for the highest proportion of the children's efficiency, demonstrating the profound influence of the traditional outlook on childbirth. Therefore, to establish the scientific outlook on childbirth of the equality of men and women is still a long-term and arduous task. Besides the propaganda and education, it still takes effort to confirm the status and role of women. The fatherhood tradition that has lasted for so long extinguishes women's role in the population production and pushes some families to try to give birth to boys at all costs. A measure for the reform is to apply the hyphenated name, which means that the children inherit the surnames from both the father and mother, and the third generation can choose any surname from the parents. In this way, daughters can also inherit the family surnames. This is a simple and feasible plan, but is resisted by people's traditional concepts. However, based on clear understanding and vigorous propaganda, it is completely feasible if relevant departments advocate and provide a facility in the household registration.

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## Chapter 3

# Population Aging and Old-Age Security

### 3.1 Present Situation of the Elderly Population in China<sup>1</sup>

#### 3.1.1 *Develop the Science of Elderly and Conduct Investigation on Elderly Population to Battle the Challenge of Population Aging*

The large population, weak economic foundation, and underdeveloped productivity constitute the main characteristics of China's basic conditions. Currently, the primary task for the solution of the population problem is to vigorously control the growth of population size, improve the population quality, and carefully implement the basic policy of family planning. However, the trend of population aging has emerged along with the decline of the birth rate. After the population boom, China will be confronted with another problem, the population aging, which will exert a great impact on the population, economy, and the social development. The report entitled *Take Great Strides Along the Road to Socialism with Chinese Characteristics* approved in the Party's Thirteenth National Congress emphasized "adhering to the family planning" and "promoting better prenatal and postnatal care and improving the population quality" and clearly pointed out the necessity to "pay attention to the population aging and timely adopt correct countermeasures." China shall clarify that the control of population size is the key to the solution to China's population problems but shall also clearly understand that the improvement of the population quality and awareness of the variation of the age structure are the important integral parts of the overall strategy on population development; therefore, corresponding

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scientific research shall be conducted. Advanced research is necessary and also possible in view of the characteristics of the population aging in China and the experiences of developed countries on population aging.

The accelerated development of the population aging brings objective requirements on the development of the elderly science. Therefore, this subject emerged and is developing rapidly. As one of the most comprehensive and marginal subjects, the elderly science has gained great results in geriatric demography, geriatric economics, geriatric sociology, geriatric psychology, geriatric medicine, geriatric biology, etc. The geriatric demography, which has obtained wide attention through its development, is considered, to some degree, the basis for the development of the elderly science. This is because the elderly science and its main branches regard the elderly population with a certain quantity, quality, and structure as the research subject. Any elderly science without the elderly population would be like water without a source or a tree without roots. However, the variation of the quantity of the elderly population, which is only a part of the total population, depends on the age structure of the total population and the birth, death, and migration of the population. The quality of the elderly population relies on the physical and cultural quality of the population of all age groups; since the younger population will grow into the elderly population, the quality of the elderly population relies on the quality of the population of all age groups. The sex structure, marriage, family structure, and geographical distribution of the elderly are also closely related to the structure of the total population. Therefore, the research on the elderly population shall relate to the total population; and the development of the elderly science shall be based on the demographic research. The development of elderly science is directly linked with population aging. The elderly science was firstly established and developed in developed countries, as required by the population aging in these developed countries. Since then, this new independent subject has accumulated rich materials and a great number of works and places among the numerous disciplines.

In China, it was not until the late 1950s when the elderly science was established as an independent discipline. The Chinese Academy of Sciences established the Research Office of Gerontology in 1958 and held the Academic Symposium on Gerontology and Geriatrics in Beijing in 1964. However, the newly born gerontology was entrenched in the "cultural revolution." Only achievements in geriatrics, such as the prevention and treatment of the diseases of the aged, were made in this period, which purely belonged to medicine. The Third Plenary Session of the Eleventh Central Committee brought about the opportunity for scientific development as well as the new birth of the elderly science. Along with the deepening scientific research on science closely related to gerontology and the expanding international academic exchange, elderly science



has increasingly aroused people's attention. The Gerontology Association of China was officially established in May 1986 and raised the study on the elderly science to a new level.

In order to respond to the approaching population aging, the research on the elderly science shall adhere to the combination of theories and practices and pay attention to the investigation and study to obtain firsthand information. Only with firsthand information can the practical analysis be conducted, the internal laws be discovered, the solutions to the elderly problem be proposed, and the elderly science of China be developed based on the findings in foreign researches. Therefore, some domestic experts, scholars, and practical workers have conducted many investigations and researches in recent years. Listed as the focus of the national social science in the 7th Five-Year Plan period, the project of the "Investigation on China's Elderly Population and Research on the Reform of the Social Security for the Aged" was, at the time, the largest sampled investigation conducted in both China and abroad. This project was held by the Institute of Demography at the Chinese Academy of Social Sciences with the cooperation of an urban and rural sampled investigation team from the National Bureau of Statistics and was completed in mid-1987. This investigation strictly followed the principle of random sampling and only allowed an error range within  $\pm 0.5\%$ . For the urban areas, based on the large sample of 150 thousand households, the second round of sample selection covered a total of 223 cities and towns and 17,819 elderly people aged above 60. The rural investigation team directly investigated 60,000 households of regular sampling and incorporated 830 counties and 18,936 people above age 60. A total of 36,755 people aged above 60 were investigated, who were distributed in 28 provinces, autonomous regions, and municipalities directly under the central government (except the Tibet and Taiwan Province). Therefore, a relative conclusion can be inferred from the investigation. The standard time for this sampled investigation was 24:00 on June 30, 1987, and the whole investigation was completed between July 1 and July 15. The pilot investigation was firstly conducted in Shanghai and Guangdong Province to ensure the quality of the investigation. In order to control the non-sampling error, specific measures were adopted in the questionnaire design, investigator training, examination of the forms, entry into the computer, logical check, and check before acceptance. It was proven that the sampled investigation on the elderly population above age 60 in 1987 had satisfied the original design requirements, reached a high level, and obtained reliable data resources. This article will analyze the current situation and characteristics of the elderly population in China, discuss the solutions to the most important problems of the elderly population, and propose some ideas on the problems in the research on the elderly science, mainly based on the first batch of information from this sampled investigation.

### 3.1.2 “Pyramid” Structure: Age, Sex, and Cultural Composition of the Elderly Population

The information of the age, sex, and cultural composition of the elderly population was obtained through several investigations, particularly the population census, and was not the focus of the sampled investigation on the elderly population above age 60 in 1987. However, since the age, sex, and cultural composition is the basic information of the population and is closely related to the subjects to be analyzed in this article, including the marriage, family, economic income, employment, support, and ability to join social activities of the elderly population, it is necessary to analyze the information.

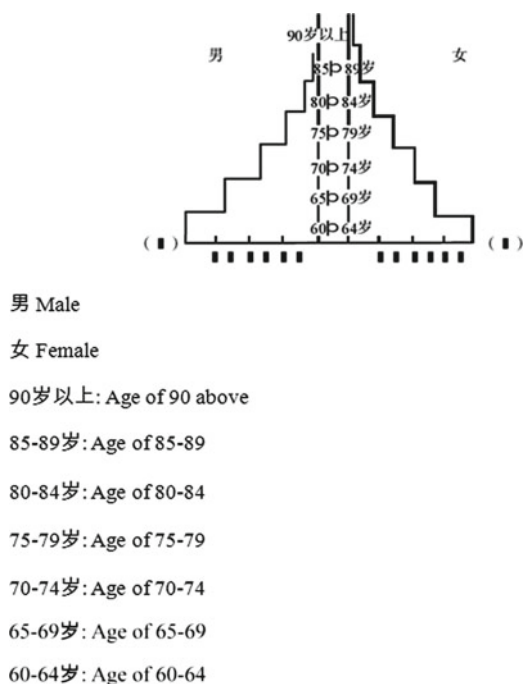
#### 3.1.2.1 Age Composition

Compared to the age structure of the total population, the age structure of the elderly population is closer to the “pyramid” structure, which is mainly because of the large difference between the death rates in the high-age group and in the low-age group. In terms of the age-specific death rate of the population in 1981 (according to the population census in 1982), the death rate for the age of 20 was only 1.44‰, age of 30 was only 1.67‰, age of 40 was only 2.90‰, and the age of 50 was only 6.87‰; however, the death rate suddenly raised to 18.20‰ for the age of 60, 26.89‰ for 65, 46.58‰ for 70, 68.36‰ for 75, 116.81‰ for 80, 171.91‰ for 85, 278.88‰ for 90, 306.81‰ for 95, and 476.77‰ for 100.<sup>2</sup> In addition to the large difference between the death rate of the elderly population and the death rate of the adult, it is evident that the high-age group of the elderly population was much higher than the low-age group of the elderly population. As mentioned above, the death rate of the elderly population aged 65 was 8.69‰ higher than 60, 70 was 19.69‰ higher than 65, 75 was 21.78‰ higher than 70, 80 was 48.45‰ higher than 75, 85 was 57.1‰ higher than 80, 90 was 104.97‰ higher than 85, 95 was 27.93‰ higher than 90, and above age 100 was 169.96‰ higher than 95. The general trend revealed that in the higher age, the difference between the death rate in the high-age group and the low-age group was even larger and fewer people could survive in the higher age group. Therefore, the age structure of the elderly population was more like the “pyramid,” compared to the irregular age structure of the youngster and adult. Figure 3.1 shows the “pyramid” of the age structure of the elderly population aged above 60 according to the sampled investigation in 1987.<sup>3</sup>

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<sup>2</sup>Data source: *The Yearbook of China Population in 1985*, China Social Sciences Publishing House, 1986, P880–881.

<sup>3</sup>Data source: “Data of the Sampled Investigation on the Elderly Population Aged Above 60 of China in 1987,” *The Population Science of China*, supplementary issue (1) of 1988, P1–3. All the information on the elderly population without special notes refers to this *Data*.



**Fig. 3.1** Age Structure of the elderly population of China in 1987

As evident in Fig. 3.1, the higher age group accounts for a smaller proportion in the elderly population. Among the elderly population aged above 60, the people aged 60–64 account for 36.7 %, 65–69 for 26.0 %, 70–74 for 18.5 %, 75–79 for 11.1 %, 80–84 for 5.4 %, and 85–89 for 1.8 %, and the people aged above 90 take up 0.5 %. This presents another obvious characteristic: that the low-age group of the elderly accounts for a large proportion among the whole elderly population. The median age of the total elderly population aged above 60 in 1987 was 67.6, the same in 1982. This meant that the elderly population aged below 67.6 equaled half of the total population, demonstrating the young age structure of the elderly population. This is a restrictive and basic indicator that is very important for China to recognize the current situation of China's elderly population in order to analyze the health, employment and communication of the elderly, and design the reform of the old-age security system and method.

Of course, the proportion of the high-age group will definitely increase along with population aging, which is known as the super aging. See the development trend in Table 3.1.

As shown in Table 3.1, the problem of super aging will emerge along with the aging of the total population. However, as restricted by the current age structure of the total population, the two are not progressing synchronically. From 1990 to 2030, aging of the age structure of the total population will be facilitated. At the same time, the proportion of the elderly aged above 80 in the total elderly population aged

**Table 3.1** Estimation of the super population aging of the elderly population from 1953 to 2050

Year	Above 60 (million people)	Age of 60–64/ age above 60	Age above 80/age above 60	Age above 80/age of 60–64	Median age (above 60)
1953	41.533	0.397	0.045	0.112	66.8
1964	42.351	0.417	0.043	0.102	66.5
1982	76.638	0.357	0.066	0.185	67.6
1990	97.392	0.353	0.070	0.198	67.7
2000	127.485	0.322	0.081	0.252	68.3
2010	160.852	0.345	0.092	0.268	68.2
2020	223.026	0.323	0.083	0.258	67.9
2030	306.610	0.354	0.079	0.223	67.8
2040	338.039	0.241	0.097	0.404	69.7
2050	318.874	0.268	0.149	0.555	70.4

Data source: The data of 1953, 1964, and 1982 is calculated based on the results of the population census; and the data from 1990 to 2050 is calculated upon the median age in the *Chinese population and employment of 2010*

above 60 will only rise from 7.0 to 7.9 %; the ratio of the elderly aged above 80 to the elderly aged between 60 and 64 will only increase from 19.8 to 22.3 %; and the median age of the elderly population aged above 60 will only slightly grow from 67.7 to 67.8 %, showing hardly any difference. It is obvious that the super aging will not be evident in the next four decades despite the facilitated population aging, due to the restrictions of the current age structure of the total population and because the low-age group among the elderly population will occupy a large proportion. This is a good opportunity for China, because if full play can be given to the role of the youngsters, it will help China through the difficulty of the serious aging and be favorable for China's development and construction. Table 3.1 also proves that the super aging will be rapidly aggravated between 2030 and 2050, when the proportion of the elderly aged above 80 in the total elderly population aged above 60 will grow by 7.0 %, the ratio of the elderly aged above 80 to the elderly aged between 60 and 64 will rise by 33.2 %, and the median age of the total elderly population will increase by 2.6 %, i.e., the elderly aged above 70.4 will occupy half of the total elderly population. When the aging of the total population reaches the peak around 2040, the super aging of the age structure of the elderly population will still be developing; and until 2050 when the aging of the total population has been mitigated, the super aging will reach an even higher level. At that time, the elderly population aged above 60 years will reach 319 million, including 48 million people older than age 80. The social security system that adapts to the super aging shall be established.

### 3.1.2.2 Sex Composition

In terms of the sex ratio of the elderly population aged above 60 in more than 160 countries and regions of the world, the sex ratio in more than 130 countries and

**Table 3.2** The sex ratio of the elderly population in developed and developing countries in 1985

Age group	World	Developed countries	Developing countries
Above 60	79.44	65.73	92.02
60–64	90.00	76.51	100.01
65–69	85.76	72.04	95.19
70–74	76.50	64.92	88.59
Above 75	62.58	52.50	76.94

regions is lower than 100, while the ratio in more than 20 countries and regions is higher than 100. The sex ratio for the elderly is generally lower, which means the ratio of females to males is higher. Currently, scientists attribute this situation to the science of genetics and the difference between the chromosomes of the male and female. However, it cannot explain the sex ratio that is higher than 100 in more than 20 countries, since the chromosomes of the male and female in these countries does not differ from other countries. Therefore, external reasons can be found for the higher sex ratio in these countries, including the different factors contributing to the death of the population. According to the United Nations *Demographic Yearbook* of 1977, these more than 20 countries included 15 African countries such as Benin and Libya, 9 Asian countries such as India and Maldives, and 3 countries of Oceania including French Polynesia and Cuba in Latin America. A variety of explanations are given to the high sex ratio in the elderly population in these countries and regions, including the low status of the female elderly and the religious grounds. However, it is commonly known that the age-specific death rate of the female elderly population in these countries and regions is generally high and only a small part of them can survive at this age. On the contrary, in developed countries, the male and female elderly population shows no large difference since the external factors that influence the death rate of the elderly population have been well solved, including the food, nutrition, accommodation, and medical care. Therefore, the internal hereditary factor plays the role, leading to an elderly population with more females than the males and a low sex ratio. In 1985, the sex ratio of the elderly population aged above 60 was 71.0 in France, 72.7 in Japan, 73.4 in the United Kingdom, and 82.6 in Sweden. See the overall difference on the sex ratio of the elderly population in developed and developing countries in Table 3.2.

According to Table 3.2, the developed countries with a high economic income and the developing countries with a low economic income show great difference in the sex ratio of the elderly population. The sex ratio of the elderly population aged above 60 in developing countries was 26.29 higher than developed countries; and the sex ratio of the age group from 60 to 64 in developing countries presented a balance between the male and female and was 23.50 higher than developed countries, which was similar to other age groups. As demonstrated by sufficient statistics, the sex ratio in more developed countries was generally lower than less developed countries (except some particular cases), and the economic development level is inversely proportional to the sex ratio of the elderly population.

**Table 3.3** The educational level of the elderly population in different age groups in China

	Age of 60–64	Age of 65–69	Age of 70–74	Age of 75–79	Age of 80–84	Age of 85–89	Above 90
University	1.81	1.21	0.84	0.73	0.71	0.71	0.00
Technical secondary school	1.75	0.83	0.56	0.38	0.17	0.53	0.00
Senior middle school	2.63	1.66	1.49	0.76	0.53	0.00	0.61
Junior middle school	10.33	7.31	4.83	3.13	3.29	3.04	4.29
Primary school	22.89	19.22	15.72	12.07	10.66	7.69	4.90
Semi-illiterate	12.76	12.89	11.94	9.99	8.50	7.15	5.52
Illiterate	47.80	56.84	64.59	72.09	76.09	80.85	84.66
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

However, it is a common law that the higher age group shares a lower sex ratio, no matter in developed or developing countries. According to Table 3.2, the worldwide sex ratio of the age of 65–69 was 4.24 lower than 60–64, the sex ratio of the age group of 70–74 was 9.26 lower than 65–69, and the sex ratio of the age above 75 was 13.92 lower than 70–74. It is similar to China's situation, where the sex ratio of the age group of 65–69 was 11.7 lower than 60–64, the sex ratio of the age group of 70–74 was 14.0 lower than 65–69, the ratio of 75–79 was 16.0 lower than 70–74, the ratio of 80–84 was 12.3 lower than 75–79, the ratio of 85–89 was 5.4 lower than 80–84, and the sex ratio of the age group above 90 was 10.9 lower than 85–89. The general trend is similar to the age composition of the elderly group that the sex ratio is lower in the higher age group of the elderly population. This shows another “pyramid” structure.

### 3.1.2.3 Cultural Composition

The cultural composition of the population is the most important indicator for the measurement of the cultural quality of the population. The cultural composition of the elderly population is closely related to the elderly population's labor, employment, income, social activities, and reform of the old-age security system and needs careful study. According to the results of the sampled investigation on the elderly population aged above 60 in 1987, the cultural composition of China's elderly population is featured with the following characteristics:

Firstly, similar to the age and sex composition, the cultural composition presents a “pyramid” structure, which means that the higher age group in the elderly population shares a lower education level. Table 3.3 shows the variation of the educational level of different age groups among the elderly population aged above 60.

According to Table 3.3, the proportion of the university, technical secondary school, senior middle school, junior middle school, primary school, and even the semi-illiterate is generally reducing along with the rise of the age group, and only the proportion of the illiterate increases along with the increase of age. This reveals that the people born in the 1920s accepted higher education than those born in

the 1910s and the people born in the 1910s received a higher educational background than those born in the 1890s. The people born earlier in history accepted lower education.

However, exceptions exist. The proportion of the technical secondary school in the age group of 85–89 is higher than the proportion of the technical secondary school in the age group of 80–84 and 75–79. A similar situation also existed in the senior and junior middle school in some age groups. A more important problem in the demographics is whether a general and comparable indicator can be applied to measure the cultural level of each age group. In the previous historical population census and registration, the educational background was divided into six levels, including university graduates, some university study, senior middle school, junior middle school, primary school, and semi-illiterate or illiterate. Sometimes, the former two were combined as the educational background of the university. Based on the practices of the elderly population and the demands of related analysis, the questionnaire of the sampled investigation on the national elderly population currently divides the educational background into six levels, including university, technical secondary school or senior middle school, junior middle school, primary school, semi-illiterate, and illiterate. It can be seen that the obtained data cannot be summarized as a universal and comparable indicator. Therefore, it is only possible to conduct the comparison on the same level of the educational background in different age groups, population types, and regions, but it is impossible to conduct a universal and abstract comparison. Then, the conflicts as above will possibly appear. For example, if A exceeds B in a level, and B exceeds A in another level, it is difficult to judge whether A exceeds B or B exceeds A in the whole. It is necessary to find a simple and comparable indicator that can reflect the comprehensive and average situation of the total population. The indicator is the length of education accepted by the population. Obviously, the cultural level of the total population can be calculated based on the population size of people in different educational levels and the average length of education of each level. However, the length of education in all kinds of schools is different in different historical stages, and the students that have graduated or are still studying in school, or studying in higher or lower grade, vary greatly in the length of education, despite the same educational level. The average length of education is actually difficult to confirm, so only an approximate value can be applied. It is better named as the population cultural quality index than the average length of education, though the index itself refers to the average length of education accepted by the population. According to the practical situation in China, the approximate value of the average length of education for university study is 16 years, the technical secondary school and senior middle school is 11 years, the junior middle school is 8 years, the primary school is 4 years, and the semi-illiterate and illiterate are 0.25 years. Therefore, the population cultural quality index for the elderly population aged above 60 in 1987 was calculated to be 2.00, which basically represent the overall educational level of the elderly population. For different age groups of the elderly population, the cultural quality index is 2.67 for the age of 60–64, 2.02 for 65–69, 1.57 for 70–74, 1.26 for 75–79, 1.10 for 80–84, 0.94 for 85–89, and 0.83 for the age above 90. Then, it is clear that the cultural level declines along with the increase of the age of the elderly population.

**Table 3.4** The cultural composition of the male and female elderly population

	Cities		Towns		Counties	
	Male	Female	Male	Female	Male	Female
University	6.38	1.30	4.03	0.29	0.32	0.14
Technical secondary school	2.36	1.58	2.60	2.00	0.67	0.10
Senior middle school	6.22	1.75	6.29	1.47	1.13	0.01
Junior middle school	22.44	4.90	22.69	4.01	7.20	0.39
Primary school	36.64	14.33	36.61	11.15	28.65	2.47
Semi-illiterate	11.95	13.50	12.64	12.57	18.66	5.15
Illiterate	14.02	62.64	15.13	68.51	43.35	91.75
Total	100.00	100.00	100.00	100.00	100.00	100.00

Secondly, the cultural level of the elderly population was lower than the total population. Due to the backward economic and underdeveloped cultural education in the previous time period, the cultural level of the total population was low. By 1987, the elderly population aged above 60 was born before 1927, so their cultural level was even lower owing to the extremely backward cultural education before the foundation of the People's Republic of China. According to the above method of calculation, the cultural quality index of the total population in 1987 was 4.65, which was 2.65 higher than and 2.3 times of the index of the elderly population aged above 60.

Thirdly, the cultural level of the elderly male was substantially higher than the female. Table 3.4 presents the sampled investigation on the elderly population in cities, towns, and counties in 1987.

As shown in Table 3.4, the primary school and the junior middle school took up the largest proportion in the educational background of the elderly male population, jointly accounting for 59.08 % in cities and 59.30 % in towns; and the illiterate occupied the largest proportion in the female, accounting for 62.64 % in cities and 68.51 % in towns. The proportion of the university and senior middle school of the male was several times that of the female. The situation was similar in villages, except that the cultural level of the male elderly in villages was also low and the illiterate and semi-illiterate accounted for more than half, and the proportion saw a gradual decline from the primary school, junior middle school, and senior middle school to university. The gap between the male and female was mainly reflected by the educational level. Only about 3 % of the female elderly in rural areas had received an education above the primary school level, and 97 % of them were semi-illiterates or illiterates. Regarding the cultural quality index, the index of the male elderly in cities was 5.29, which was 3.1 times that of the female, 1.73; and the cultural quality index of the male elderly in counties was 2.13, which was 5.2 times that of the female, 0.41. The gap between the male and female elderly population was even greater, strongly reflecting the sexual discrimination over the female in cultural education in the Old China.

Fourthly, the cultural level of the elderly population varied greatly in rural and urban areas, while the educational level in urban areas was significantly higher than in rural areas. The elderly population with a university educational background accounted for 3.70 % in cities, 2.05 % in towns, and 0.23 % in counties, with cities



**Table 3.5** Comparison between the age of the first marriage of the elderly population aged above 60 and the population aged above 15 in 1987 (unit: %)

	Age of the first marriage	Age above 60	Age above 15
Age of 15–19		47.0	27.3
Age of 20–24		35.2	52.3
Age of 25–29		11.8	17.2
Age of 30–34		4.2	2.8
Age above 35		1.8	0.4
Total		100.0	100.0

Data source: The data of the age of the first marriage of the population aged above 15 refers to the *Data of the Sampled Investigation on 1 % of China's Population in 1987*, China Statistical Publishing House, 1988

1.65 % higher than towns and towns 1.82 % higher than counties; the population with a senior middle school educational level accounted for 5.80 % in cities, 6.01 % in towns, and 0.91 % in counties, with the cities similar to towns and towns 5.10 % higher than counties; the population with a junior middle school education accounted for 13.16 % in cities, 12.79 % in towns, and 3.60 % in counties, with cities similar to towns and towns 9.19 % higher than counties; the population with a primary school education accounted for 24.89 % in cities, 23.11 % in towns, and 14.81 % in counties, with cities similar to towns and towns 8.30 % higher than counties; and the population of illiterates and semi-illiterates accounted for 52.50 % in cities, 56.04 % in towns, and 80.55 % in counties, with cities similar to towns and counties 24.51 % higher than towns. In terms of the cultural quality index, the index for the elderly population in 1987 was 3.64 in cities, 3.50 in towns, and 1.22 in counties, with a ratio of cities, towns, and counties of 3:2.9:1. The index of cities showed no large difference with towns, but the cultural quality index of the elderly population in cities and towns was three times that of the rural areas. This reflected the once-extremely backward education in rural areas of China.

### 3.1.3 *Reproduction of the Old Marriage: Marriage, Childbirth, and Family of Elderly Population*

China's elderly population aged above 60 in 1987 under the sampled investigation were born in or before the 1920s, so their marriages represented the characteristics of the old-type marriage, including the early marriage, multiple births, and large scale of the family, the basic unit for population reproduction.

#### 3.1.3.1 **Dominance of the Early Marriage and the Only-Once Marriage**

Table 3.5 shows the age of the first marriage of the elderly population aged above 60 according to the sampled investigation in 1987 and the age of the first marriage of the population aged above 15 based on the sampled investigation of 1 % population.

According to Table 3.5, the age of the first marriage of half of the elderly population aged above 60 was between 15 and 19 years, compared to only 27.3 % of the population aged above 15, which proved the custom of early marriage in previous times. The early marriage was more serious in the higher age groups among the elderly population. 43.8 % of the population aged 60–64 married between the ages of 15 and 19, compared to 46.0 % of the population aged between 65 and 69, 49.4 % of the population aged 70–74, 50.8 % of the population aged 75–79, 53.8 % of the population aged 80–84, 54.3 % of the population aged 85–89, and 61.0 % of the population aged above 90 that married between the ages of 15 and 19. On the contrary, except the early marriage, the proportion declines in the higher age groups among the elderly population. 37.1 % of the population aged between 60 and 64 married between the ages of 20 and 24, compared to 33.7 % of the population aged between 70 and 74, 33.3 % for the age between 80 and 84, and 26.4 % for the age above 90; and 13.8 % of the population aged between 60 and 64 married for the first time between ages 25 and 29, compared to 10.3 % of the population aged between 70 and 74, 7.8 % for the age between 80 and 84, and 7.5 % for the age above 90. The data proved that the custom of early marriage weakened along with historical development, and the age of the first marriage had been increased.

The educational background of the elderly population is closely related to the age of the first marriage. Most of the elderly population with a university education background, as high as 36.0 %, married for the first time between ages 20 and 24; 26.4 %, the second largest proportion married between ages 25 and 29; and then 22.0 % married between ages 15 and 19. However, the age of the first marriage of most of the elderly population with a senior middle school, technical secondary school, junior middle school, and primary school education background was also between ages 20 and 40, taking up 40 % of the population, but was followed by the age of the first marriage between 15 and 19, accounting for about 30 % of the population, much higher than the elderly with a university education background; and the third largest proportion of the population married between ages 25 and 29, taking up less than 20 %, much lower than the educational background of the university. As high as 53.0 % of semi-illiterates and illiterates married between ages 15 and 19, followed by 32.9 % who married between 20 and 24, and 9.4 % who married between the ages of 25 and 29, which was quite different to the population with a university education background and also varied greatly to those with an educational background of the middle or primary school. Early marriage was an evident characteristic of semi-illiterates and illiterates.

The elderly population in rural and urban areas shared the same sequence of the proportion of the first-marriage age based on the age groups of 5 years, which was age 15–19, 20–24, 25–29, 30–34, and above the age of 35. This demonstrated that the lower first-marriage age accounted for a larger proportion. However, rural and urban elderly showed some differences in the specific proportion of the age of the first marriage. 40.3 % of the elderly in cities married for the first time between 15 and 19, compared to 41.1 % of the aged in towns and 51.0 % of the aged in counties, with the counties about 10 % higher than towns. Urban and rural elderly population showed no significant difference in the proportion of the first-marriage age between

**Table 3.6** The structure of the times of marriage of the elderly population in cities, towns, and counties (unit: %)

Times of marriage	Nationwide	Cities	Towns	Counties
Never	0.7	0.4	0.4	0.8
Once	82.4	83.9	80.9	82.5
Twice	14.9	14.4	16.6	14.5
Three times	1.7	1.4	1.8	1.8
Four times or above	0.3	0.2	0.3	0.4
Total	100.0	100.0	100.0	100.0

20 and 24. The proportion of the first-marriage age of 25 and above in cities was about 10 % higher than the rural areas, which filled in the gap between the urban and rural elderly in the group of the first-marriage age between 15 and 19.

The difference in the age of the first marriage between males and females was very evident. The first-marriage age of the male elderly population was generally higher than the female, no matter in rural or urban areas. Among the male elderly population, most of them married for the first time between the ages of 20 and 24, 37.2 % in cities, 37.2 % in towns, and 40.9 % in counties, which was 2.7, 2.7, and 11.5 % higher than the proportions of the female, respectively, 34.4, 34.5, and 29.4 %. However, most of the female elderly population married for the first time between the ages of 15 and 19, 56.9 % in cities, 57.0 % in towns, and 66.9 % in counties, which was 29.0, 33.9, and 32.8 % higher than the proportions of the male, respectively, 27.1, 23.1, and 34.1 %. In the proportions of the higher first-marriage age, the male was higher than the female. With the proportions of the first-marriage age between 25 and 29, as an example, the age of the male was 18.3 % higher than the female in cities, 15.5 % higher in towns, and 13.2 % in counties. This proved that the early marriage was more serious among the female elderly, whose first-marriage age was generally lower than the male.

Common among the elderly population was the number of times one married, predominantly marrying only once in their lives. According to the results of the sampled investigation in 1987, among the Chinese elderly population aged above 60, 0.7 % never married, 82.4 % of them married only once, 14.9 % married twice, 1.7 % married three times, and only 0.3 % married four times or more. This was universal in both the urban and rural elderly population, but a slight difference was also found between them. The proportion of those never married was higher in rural areas. See Table 3.6.

The structure of the marriage times varied between the male and female elderly population. See Table 3.7.

As presented in Table 3.7, the structure of the marriage times of the male and female elderly population was similar: The only-once marriage dominated, those who married twice took up 13.1–16.7 %, those who married three times occupied a very small proportion, and the never-married also took up a very small proportion. Differences can also be found in some aspects. The never-married male population was higher than the female, especially 1.1 % higher in rural areas; the proportion of

**Table 3.7** Structure of the marriage times of the male and female elderly population (unit: %)

Marriage times	Cities		Towns		Counties	
	Male	Female	Male	Female	Male	Female
Never	0.4	0.3	0.3	0.4	1.4	0.3
Once	81.5	85.6	80.7	81.1	81.8	83.0
Twice	15.8	13.1	16.3	16.7	14.1	14.9
Three times	1.9	0.9	2.2	1.5	2.2	1.5
Four times or above	0.4	0.1	0.4	0.2	0.6	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

the only-once marriage among the females occupied a larger proportion than the male, 4.1 % higher in cities, 0.4 % higher in towns, and 1.2 % higher in counties; no law could be found in those who married twice; the proportion of males that married three or four times or above was obviously higher than the proportion of the female; and the proportion of the male that married three times was higher than the female, 1.0 % higher in cities, 0.7 % higher, in towns, and 0.7 % higher in counties. This demonstrated that the structure of the marriage time of the female elderly was more featured with the characteristic of the only-once marriage, which resulted from feudal ideas such as “to be contented with a man a woman has married” and “a good woman shall never marry twice.” However, the times are different. The marriage of the elderly has become a social concern in recent years; the love between the aged has become one of the main subjects of literature; and the proportion of the female elderly in towns and counties that married for a second time is larger than the male.

Regarding the structure of the marriage times based on the division of the educational background and original occupation of the elderly, two obvious characteristics can be discovered. Firstly, the proportion of the elderly population with an educational background that never married was comparatively large. For example, 0.4 % of the total elderly population in cities never married, while 0.8 % of the elderly population in cities that acquired a university education never married, compared to 0.4 and 1.3 % in towns and 0.8 and 4.7 % in counties. Secondly, the proportion of the urban elderly population whose original occupations were cadres, businessmen, or service men who married only once was comparatively low, but the proportion of those that married twice was comparatively higher. For example, 83.7 % of the elderly population in cities married only once, but 79.8 % of the elderly whose original occupations were cadres, 80.0 % of businessmen, and 81.6 % of service men married only once; and compared to 14.4 % of those who married twice on average, respectively, 17.9, 17.3, and 16.4 % of the above three groups had married for the second time. 80.9 % of the elderly population in towns married only once, compared to 78.0 % for cadres, 80.6 % for business men, and 78.2 % for service men; and 16.6 % of the elderly population in towns married twice, compared to, respectively, 20.2, 17.1, and 18.0 % of the abovementioned three groups of people.

**Table 3.8** Comparison between the marriage status of the elderly population and adult population (unit: %)

Age group	Unmarried	Married	Divorced	Widowed
Age of 24	36.1	63.1	0.2	0.1
Age of 30–34	4.9	93.9	0.6	0.6
Age above 60	0.6	62.2	0.6	36.6
Age of 60–64	0.8	79.6	0.7	18.9
Age of 65–69	0.5	67.8	0.8	30.9
Age of 70–74	0.5	51.6	0.5	47.4
Age of 75–79	0.8	37.3	0.6	61.3
Age of 80–84	0.5	24.0	0.6	74.9
Age of 85–89	0.2	15.3	0.2	84.3
Age above 90	0.6	14.2	0.6	84.6

Data source: The data for the age group of 24 and 30–34 refers to the *Data of the China's Population Census in 1982*; and the data of the elderly population refers to the *Data of the Sampled Investigation on the Elderly Population Aged Above 60 in 1987*

### 3.1.3.2 Low Spouse Rate and High Widowed Rate

A low spouse rate and high widowed rate is a common characteristic of the elderly population all around the world, which is decided by the age and sex structure of the elderly population. As mentioned above, except for more than 20 countries and regions, the sex ratio of the elderly population is generally below 100. This means that the female elderly population is larger than the male, which determines the spouse and widowed rate of the elderly population. According to the United Nations *Demographic Yearbook* of 1976, 79 % women between the ages of 35 and 39 in the United States had married and lived with their spouse in 1976, compared to 80 % in Sweden, 91 % in Japan, 84 % in Mexico, and 92 % in India. However, the ratio of American women aged between 65 and 74 was only 47 % and further declined to 22 % for the women aged above 75, compared to 20 % in Sweden, 15 % in Japan, 32 % in Mexico, and 22 % in India. In other words, except the unmarried women, 3/4 of American women aged above 75 were widowed, compared to 4/5 in Sweden, 5/6 in Japan, 2/3 in Mexico, and 4/5 in India. Despite great differences, the general trend is the same. In 1976, 86 % of the male population aged between 35 and 39 in the United States had married and lived together with their spouse, compared to 76 % in Sweden, 92 % in Japan, 88 % in Mexico, and 93 % in India; but for men aged above 75, the rate dropped to 68 % in the United States, compared to 54 % in Sweden, 63 % in Japan, 67 % in Mexico, and 67 % in India.<sup>4</sup> China's situation is similar to the rest of the world. See Table 3.8.

<sup>4</sup>Data source: John R. Weeks [17].

Table 3.8 shows that China's elderly population also saw a low spouse rate, which was similar to the 24-year-old age group and 31.7 % lower than the age group of 30–34, and a high widowed rate, 36.5 % higher than the age group of 24 and 36.0 % higher than the age group of 30–34. This characteristic became obvious in the higher age group of the elderly population. For example, in 1987, the spouse rate of the elderly aged between 60 and 64 was 79.6 %, compared to 51.6 % for the age group of 70–74, 24.0 % for 80–84, and 14.2 % for those above 90; but on the contrary, the widowed rate is growing along with the increase of the age group, with 18.9 % for the age group of 60–64, 47.4 % for 70–74, 74.9 % for 80–84, and 84.6 % for those above 90. The unmarried and divorced population is of little relationship to the age composition of the elderly population. The rapid decline of the spouse rate and the significant increase of the widowed rate along with the increase of ages lead to special problems on supporting and caring for the elderly population.

The high widowed rate and low spouse rate of the elderly population also varies within the different educational backgrounds of the elderly population. According to the sampled investigation in 1987, the elderly with a higher educational level enjoyed a higher spouse rate and lower widowed rate, while the elderly with a lower educational level saw a lower spouse rate and higher widowed rate. As shown by the summarized results of the investigation, the spouse rate was 85.5 % for the elderly population with a university educational background, 87.5 % for those with a senior middle school education, 82.6 % for the junior middle school, 77.9 % for the primary school, 68.9 % for the semi-illiterate, and 52.6 % for the illiterate. The spouse rate of the aged with a university education background was 7.6 % higher than the primary school and 32.9 % higher than the illiterate. On the contrary, the widowed rate increased in the lower educational levels, which was 10.5 % for the elderly with a university education level, 12.1 % for the senior middle school, 16.2 % for the junior middle school, 21.0 % for the primary school, 29.6 % for the semi-illiterate, and 47.1 % for the illiterate. It can be seen that more elderly with a high educational background were living with a spouse, while fewer elderly with a low educational background had a spouse. Only about half of the illiterate elderly had a spouse, while the other half were widowed. This situation demonstrates that the elderly with a low educational background were lonelier and enjoyed less care from their spouse.

The elderly of different income levels also showed substantial difference in the spouse and widowed rate. Those with a higher income shared a higher spouse rate and lower widowed rate, while those with a lower income had a lower spouse rate and higher widowed rate. According to the results of the investigation, 93.8 % of the elderly population with a monthly income above 201 yuan had a spouse, compared to 92.6 % with an income level between 151 and 200 yuan, 89.4 % for 101–150 yuan, 77.1 % for 71–100 yuan, 64.4 % for 46–70 yuan, 56.5 % for 15–45 yuan, and 56.1 % for those with a monthly income less than 15 yuan. The widowed rate for the elderly with a monthly income above 201 yuan was 6.2 %, compared to 7.0 % for 151–200 yuan, 9.8 % for 101–150 yuan, 21.6 % for 71–100 yuan, 34.2 % for 46–70 yuan, 42.3 % for 15–25 yuan, and 42.3 % for those with a monthly income

less than 15 yuan. Why is the economic income level of the elderly population closely related to their spouse and widowed rate? It proves that under the socialist commodity economy, the economic income has become a condition for choosing a spouse, even in the marriage of the elderly population. It is easier for the aged with a higher income to find a new spouse, but much more difficult for those with a low income or without income. In addition, the higher economic income enables a better nutrition status and better treatment of disease, which will lower the death rate and prolong life; therefore, the spouses will accompany each other for a longer period. Economy is the basis for the marriage among the elderly population.

Urban and rural elderly also vary in the spouse rate. According to the sampled investigation in 1987, 68.5 % of the elderly population aged above 60 in cities had a spouse, compared to 66.7 % in towns and 55.6 % in counties. Upon the comparison with 60.3 %, the average level of the whole country, the spouse rate of the elderly in cities was 8.2 % higher, the rate in towns was 6.4 % higher, and the rate in counties was 4.7 % lower. The average widowed rate of the state was 36.6 %, compared to 29.4 % in cities and 31.2 % in towns, which were, respectively, 7.2 and 5.4 % lower than the state level; and the widowed rate in counties was 40.6 and 4.0 % higher than the state. This demonstrates that the widowed rate in rural areas was higher and the problem on these widowed elderly was more acute.

### 3.1.3.3 Serious Early Childbearing and Large Number of Children

Early marriage directly leads to early childbearing, resulting in the large proportion of the early childbearing among the female elderly and the concentration of child-birth in the low-age groups. According to the sampled investigation in 1987, 26.8 % of all female elderly had given birth to children when they were between the age of 16 and 20, 67.2 % of them gave birth to children between 16 and 23, 81.7 % of them gave birth to children between 16 and 25, and only 18.3 % of them gave birth to children after the age of 26. However, according to the childbirth of all women at childbearing age in 1981, only 3.5 % of them gave birth to children when they were between 15 and 20, 23.3 % lower than the elderly population; 20.7 % of them gave birth to children between 15 and 23, 46.5 % lower than the elderly population; 43.9 % of them gave birth to children between 15 and 25, 37.8 % lower than the elderly population; and 56.1 % of them give birth after their age of 26, which was 37.8 % higher than the elderly population. This demonstrates that the age of the women giving birth to children in the 1980s was significantly different to the women in the mid-1940s. The sampled investigation represented the serious cultural norm of early childbearing in the mid-1940s.

As proved by many foreign and domestic instances, the marriage and childbearing age is closely related to the whole-life birth rate of women, which was again demonstrated by the sampled investigation of the elderly population in 1987. Figure 3.2 shows the relation between the age of the first marriage of the nationwide female elderly population and the parity of children.

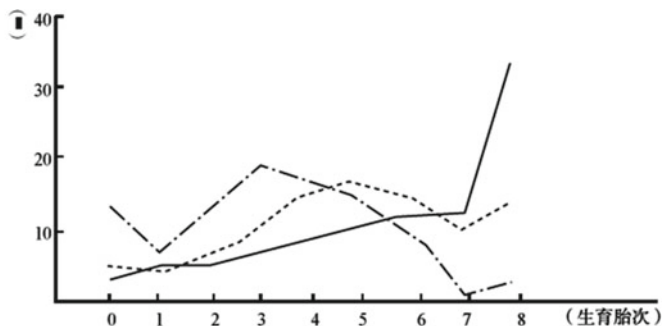


图2 女性老年人口初婚年龄和生育胎次构成

注：①为初婚年龄17岁的女性老年人口；②为初婚年龄23岁的女性老年人口；③为初婚年龄29岁的女性老年人口。

### 生育胎次 birth parity

**Fig. 3.2** The age of the first marriage of the female elderly population and the composition of the birth parity

Note: ① refers to the female elderly population with a first-marriage age of 17; ② refers to the female elderly population with a first-marriage age of 23; and ③ refers to the female elderly population with a first-marriage age of 29.

As shown in Fig. 3.2, the number of children born to the female elderly population was closely related to their first-marriage age. Most of the female elderly, taking up 33.8%, with a first-marriage age of 17, gave birth to more than 8 children, while about 12% gave birth to 6 children, and another 12% gave birth to 7 children; the proportion of fewer children was lower, and only 5.9% gave birth to two children, only 5.0% gave birth to one child, and 3.6% never gave birth. For the elderly population with a first-marriage age of 23, 16.4% of them gave birth to 5 children, which was the largest proportion, followed by the proportion of them giving birth to 4 children, 15.6%, and then the proportion of them giving birth to 8 children, 15.4%; the proportion of them giving birth to only one child was similar to the elderly population with a first-marriage age of 17, but the proportion of them giving birth to two children or never giving birth was higher. This situation was quite different for the female elderly population with a first-marriage age of 29; most of them, as high as 19.8%, gave birth to three children, followed by the proportion of about 16% of them giving birth to 4 or 5 children and then followed by the proportion of 12.5%, who gave birth to two children; about 13.5% of them never gave birth, which meant that 1/7 of the females who married at the age of 29 never gave birth; and the proportion of those giving birth to 7 and 8 children declined to below 4%. According to the sampled investigation of the elderly population in 1987, most of the elderly population, as much as 20%, married before age 23 and gave birth



to 8 or more children; and the proportion was larger for those married earlier. For example, the proportion of those giving birth to 8 or more children reached 38.8 % for those married at the age of 16, 33.8 % for those married at the age of 17, 24.8 % for those married at the age of 20, and 20.2 % for those married at the age of 22; most, as high as 30 %, of the female elderly who married between the age of 23 and 31 gave birth to 4 or 5 children, while 35–80 % of them gave birth to 2 or 3 children; and most of the female elderly who married after age 38 gave birth to only one child or never gave birth. Generally, the first-marriage age shows a great impact on the number of children. Therefore, the late marriage means fewer births, which was again proved by the investigation.

The women who married earlier give birth to more children, while the women who married later give birth to fewer children, which largely depended on the age of the first-time mother. The age of the first-time mother greatly affects the structure of the number of children. Generally, most women who gave birth to their first child before the age of 25 had given birth to a total of 8 or more children. Especially, for those who gave birth to their first child between 17 and 19 years old, as many as 40–50 % of them had given birth to 8 or more children in total, followed by the proportion of them giving birth to 7, 6, or 5 children; and only a few of them gave birth to only 1 or 2 children. For those who gave birth to their first child between 26 and 34 years, most of them gave birth to 3 children in their whole life. Most of the female elderly that gave birth to the first child at 26, 27, or 28 gave birth to 4 or 5 children. The majority of the women that gave birth to their first child after the age of 35 only gave birth to one child in their whole life, while a few of them gave birth to 2 children. The age of the first-child mother directly influences on the number of children.

The educational background of the female elderly is also closely related to the number of children they bore. According to the sampled investigation, most the female elderly with a university education background gave birth to 3 children; most female elderly with a middle school education background gave birth to 4 children; and most female elderly with a primary school education background, or who were semi-illiterate or illiterate, gave birth to 8 or more children. To be specific, 22.6 % of the female elderly with a university education background gave birth to three children, compared to 14.4 % of those with a senior middle school education background, 14.8 % of the junior middle school, 8.5 % of the primary school, and 8.6 % of those who were semi-illiterate or illiterate. 4.8 % of the female elderly with a university education background gave birth to more than eight children, compared to 11.3 % of the senior middle school, 13.2 % of the junior middle school, 19.5 % of the primary school, and 26.5 % of the semi-illiterate or illiterate. The overall trend shows that for women who gave birth to three or fewer children, those of higher educational background gave birth to more children; but for women who gave birth to more than three children, those of higher educational background gave birth to fewer children. According to the sampled investigation on the elderly population, the educational level of the female elderly is inversely proportional to the number of children they bore.

### 3.1.3.4 Transitional Families

The family is the basic unit for population reproduction. As a part of the total population, the elderly population is featured with a common characteristic and special property in the family scale and structure, which are related to both the basic characteristics of the elderly population as well as the productivity level and the traditional cultural of a country. Therefore, the current families of the elderly population are under the transitional status, as reflected by the family scale and family type of the elderly population.

According to the sampled investigation, the average number of residents in each family of the elderly population aged above 60 in 1987 was 4.9, 0.5 higher than 4.4 people per household in 1982 according to the population census and 0.7 higher than 4.2 people per household in 1987 according to the 1 % sampled investigation. Regarding the structure of the family scale, the five-person family accounted for the largest proportion, 18.9 %, in the sampled investigation on the elderly population, compared to the 4-person family in 1982, equaling 19.5 %. The second largest proportion based on the sampled investigation on the elderly population was the 6-person family, occupying 16.6 %, compared to the 5-person family in the 1982 population census, equaling 18.4 %. The third largest proportion based on the sampled investigation on the elderly population was the 4-person family, taking up 14.1 %, compared to the 3-person family in 1982 population census, accounting for 16.0 %. The smallest proportion was the 1-person family based on the sampled investigation of the elderly population, taking up 2.6 %, compared to the 6-person family in 1982 population census, taking up 6.9 %. The 2-person family accounted for a larger proportion in the elderly population than in the general population; the 1-person, 3-person, and 4-person family accounted for a larger proportion in the general population than in the elderly population; and the proportion of the 5-, 6-, and 8-person and above families was also larger in the elderly population than the general population. The families of the elderly population were generally larger than the average.

The structure of the elderly population's family scale is linked with the age, educational background, income, and the urban and rural distribution of the elderly population. In terms of its relation with the age structure of the elderly population, since the younger elderly do not need as much care as the elderly of a higher age, the family scale of the elderly population in a lower age group is comparatively smaller, and the family scale of the elderly population in a higher age group is comparatively bigger. According to the sampled investigation on the elderly population, the 3-person family accounted for the largest proportion among the elderly population aged between 60 and 64 years; the 5-person family accounted for the largest proportion among the elderly population aged 65–69 and 70–74, respectively, taking up 19.0 and 19.8 %; and the 6-person family accounted for the largest proportion among the elderly population aged above 75 years, taking up 20.4 % for the age group of 75–79, 22.4 % for 80–84, 22.2 % for 85–89, and 18.0 % for those aged above 90. The proportion of the large-scale families increased in the higher age group among the elderly population.

The elderly population with different educational background also differs in the family scale. According to the sampled investigation on the elderly population, most, as many as 30.8 %, of the elderly with a university education background had a 2-person family; and the 2-person family also accounted for the largest proportion among the elderly population with a middle school education background, technical secondary school, and primary school, but only took up 27.4 % among the aged with an senior middle school education background, 26.3 % among the technical secondary school, 21.4 % among the junior middle school, and 18.0 % of the primary school. Generally the proportion of the 2-person family among the elderly population with an educational background from the university, senior middle school, junior middle school, and primary school declined by about 3 % along with each degradation of the educational background. The educational background of the elderly population is inversely proportional to the family scale.

The income level of the elderly population is also closely related to their family scale. For the elderly population with an average monthly income below 25 yuan, the 6-person family constituted the largest part, taking up 30.8 %; for the elderly with a monthly income between 26 and 70 yuan, the 5-person family occupied the largest part, taking up 20.1 %; for the elderly with a monthly income above 71 yuan, the 2-person family accounted for the largest proportion, taking up 30.8 %; and particularly, for the elderly with a monthly income over 100 yuan, the 2-person family took up a proportion as high as above 40 %. The total trend showed that the elderly of a lower income level had a larger family scale and the elderly of a higher income level had a smaller family scale; and the 6-person, 5-person, and 2-person family, respectively, accounted for the largest proportion in the family scale of the elderly of the low, medium, and high income level.

Compared to the elderly in urban areas, the rural elderly population enjoyed a comparatively higher family scale. According to the sampled investigation in 1987, the average number of residents in the family of the elderly population in cities and towns was 3.7, while the number in villages was 5.5, 1.8 higher than in cities and towns. The proportion of 1–4-person families accounted for 68.1 % in cities, 64.8 % in towns, but only 29.2 % in counties; and the proportion of 1–3-person families accounted for 50 % in cities, 50 % in towns, but only 16.7 % in counties, showing a great difference. The situation for the families of more than 5 people was the exact opposite. The 5-person families took up 19.9 % in counties, 17.8 % in towns, and 17.0 % in cities; and the 6-person families took up 21.3 % in counties, 9.9 % in towns, and 8.8 % in cities. The families made up by two generations, such as the parents and children or the grandparents and grandchildren, accounted for 29.2 % of the total number of families of the elderly population, 34.6 % in cities, 31.1 % in towns, and 26.9 % in counties. It is clear that the proportion in cities is higher than in rural areas, while the proportion in cities is higher than in towns. The one-couple family took up 12.9 % of the total elderly population, 20.9 % in cities, and 22.5 % in towns, compared to the much lower proportion of 7.2 % in counties. It was also notable that the one-person family only accounted for 3.4 % in the total elderly population, but equaled 5.2 % in cities, 6.6 % in towns, and only 1.9 % in counties, showing a great difference. The proportion of the 1-person family of the elderly in

**Table 3.9** The structure of the family type of the elderly population

	Nationwide	Cities	Towns	Counties
Single-person family	3.4	5.2	6.5	1.9
One-couple family	12.9	20.9	22.5	7.5
Two-generation family	29.2	34.6	31.1	26.9
Three-generation family	50.0	36.9	37.6	58.0
Four-generation family	3.0	1.6	1.7	3.8
Families of a single and other relatives or non-relatives	0.4	0.4	0.2	0.6
Others	1.0	0.4	0.3	1.4

rural areas was even 1.9 % lower than the proportion of the 4-generation family, which was 3.8 %. The proportion of the 1-person family was only the fifth largest for the elderly population in rural areas. It is clear that in the current family structure of China's elderly population, the stem family takes the first place, followed by the nuclear family, joint family, and the single-person family; and other families take the fifth place. This family structure has strayed from the joint-family-based feudal structure of large families but has not entered the nuclear-family-based structure as the total population did. Meanwhile, the family type is closely related to the family scale of the elderly population. As presented in Table 3.9, the structure of the family type of the elderly population is also featured with some particularities.

According to Table 3.9, the three-generation families accounted for the largest proportion among the elderly population's families but varied greatly in urban and rural areas. The proportion was 36.9 % for cities and 37.6 % for towns, which were similar, compared to 58.0 % in counties, which was 20.4 % higher than in the towns. The second largest part was made up by the nuclear family. This demonstrated that the elderly population's family was transitioning from the large families to small families.

### ***3.1.4 Co-existence of Agricultural and Industrial Characteristics: Economic Status and Support of the Elderly Population***

Owing to the social tradition of respecting, loving, and supporting the aged, the elderly population was generally respected in China and the eastern world, which was envied by some westerners. Then is the social tradition of respecting the aged an innate practice, or is it only conceptual in these areas? The author thinks not. The traditional agricultural economy is the objective economic basis for the generation and the existence of the tradition. In the agricultural society of an underdeveloped commodity economy, due to the underdeveloped and even stagnated science and production techniques, experiences decided the technical level in the manual

work-oriented production. Experiences were proportional to the age of the people, so the aged became the symbol of experiences and techniques, as well as the authority in the production, and won the respect of the people, including their children. Therefore, it was natural that the children should respect and support the aged, which has constituted the tradition of respecting the aged and the family support of the eastern style as time passed. It is completely different in the industrial society. As a result of the fierce competition in the commodity production and constant improvement of science and technology, the experiences of the elderly population in the agricultural society are greatly devalued compared to the new technologies in the industrial society. Meanwhile, the aged find difficulties in studying the new technologies and adapting to the fast-paced society, so they decline from the authority of the production technologies in the agricultural society, becoming a straggler in the industrial society. Their high social status has been replaced by age discrimination. The new method of the support to the elderly has generated in the modern society based on their low social status, i.e., the children live separately and independently from their parents and will be regarded as incompetent adults if they continue to live with their parents. As a developing country, China is still low in the productivity level and is still profoundly affected by the traditional agricultural economy; but at the same time, as a socialist state, China is experiencing rapid industrialization and commodity economy, which also influences the tradition and the economic life of the elderly population. According to the sampled investigation, the current economic status, economic life, and support of the elderly population are featured with both agricultural and industrial characteristics and are transforming from the agricultural to industrial status, showing a special pattern under the certain historical conditions.

#### **3.1.4.1 Sources of Economic Incomes**

According to China's sampled investigation on the elderly population aged above 60 years in 1987, the sources of economic incomes of the elderly population include pension, children's support, labor income (including reemployment), savings and insurance, financial assets, and social relief, with the pension, children's support, and the labor income as the "three mainstays" of the sources of economic incomes, taking up over 90 % of the total income of the elderly population. The differences on the sources of economic incomes of the elderly population are mainly reflected in the differences on the "three mainstays" that constitute different structures of the income sources.

In urban areas, the pension equaled the largest proportion in the income sources, 63.7 % in cities and 56.3 % in towns, which exceeded the sum of all other sources; the support from children (and other relatives) took the second place, accounting for 16.8 % in cities and 21.0 % in towns; and the third place was taken by the labor work of the aged themselves, including the incomes from reemployment, accounting for 14.6 % in cities and 14.7 % in towns. In counties, the labor income of the aged themselves ranked the first, taking up 50.7 % of the total incomes;

the children's support took the second place, equaling 38.1 %; and the pension took the third place, accounting for 4.7 %. Situations in cities and towns were similar; the first and third place were inverted from that of the biggest mainstay; the pension, in cities and towns, was only the third mainstay for counties, and the biggest mainstay, the labor income, in counties was only the third mainstay for cities and towns. This reflects the great change in the income sources of the elderly population in cities, where the aged mainly rely on the pension of the state and enterprises instead of from children's support and their own labor work. According to statistics from the National Bureau of Statistics, the total number of retired had increased from 3.14 million in 1978 to 19.68 million in 1987, having grown by 5.3 times; and meanwhile, the insurance and welfare funds for the retired had correspondingly increased from 1.73 to 23.84 billion yuan, by 12.8 times. In the 9 years, the average insurance and welfare for each retiree had increased from 551 to 1,263 yuan, by 1.3 times. In terms of the pension, the total amount of the pension of all whole-people-owned enterprises reached 13.34 billion yuan in 1987, which took up 9.14 %<sup>5</sup> of the total wages of these enterprises that amounted to 145.93 billion yuan and was still growing rapidly. This demonstrated that the state and enterprises became mainly responsible for China's main income source of the urban elderly population. In rural areas, the social insurance was not enough, so the income sources mainly relied on the labor work of the aged and the support of the children, with the former slightly more important than the latter.

The structure of the main economic income sources of the elderly population is closely related to the age of the elderly population. The total trend shows that in the higher age groups, the proportion of the pension and their own labor work in the total income sources is smaller and the proportion of the children's support (including other relatives) is larger. For example, in cities, the pension accounted for 66.1 % of the economic income sources for the elderly population aged between 60 and 64, compared to 62.8 % in the elderly aged 70–74, 48.3 % in the age group of 80–84, and 25.0 % for the elderly aged above 90 years old; the proportion of the labor work, including reemployment, declined from 20.5 to 9.8%, 2.2%, and 3.1 %; and the proportion of the support from children and a few other relatives was 9.4, 21.1, 41.0, and 62.5 %. The situation in counties was similar. In the abovementioned four age groups, the proportion of the labor work in counties declined from 66.5 to 33.4, 7.7, and 2.6 %; the proportion of the support from children and a few other relatives was 23.0, 55.5, 78.6, and 82.1 %; and the proportion of the pension showed no big change due to its too low proportion. It can be clearly seen that the “three mainstays” played different roles for the elderly population in different age groups and a general law could be found.

More importance should be attached to the different economic income structures between the two sexes of the elderly population. See the results of the sampled investigation on the elderly population in 1987 in Table 3.10.

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<sup>5</sup>Data source: *China Statistical Yearbook* 1988, P203.

**Table 3.10** Different structures of the income sources of the elderly population between sexes (unit: %)

	Cities		Towns		Counties	
	Male	Female	Male	Female	Male	Female
Labor work	18.9	8.5	18.7	8.9	62.9	32.5
Pension	74.1	49.0	71.0	35.0	7.1	1.2
Support from children or relatives	4.9	33.6	6.9	41.6	24.6	58.1

According to Table 3.10, firstly, the proportions of the pension and labor income among the male elderly are much higher than those among the female, no matter in rural or urban areas. The proportion of the pension in the total economic incomes of the male elderly population was 25.1 % higher than the female in cities, 36.0 % higher in towns, and 5.9 % higher in counties; and the proportion of the labor income, including the reemployment income of the male elderly population, was 10.4 % higher than the females in cities, 9.8 % higher in towns, and 30.4 % higher in counties. Secondly, the proportion of the support from children and a few other relatives in the total income sources for the female elderly was higher than the male, 28.7 % higher in cities, 34.7 % higher in towns, and 33.5 % higher in counties. Thirdly, the rank of the proportions of the “three mainstays” is different among the male and female elderly in urban and rural areas. For the male, the highest proportion was the pension in cities and towns and labor income in counties; and for the female, the highest proportion was the pension in cities and the support from children and a few other relatives in towns and counties. For the male, the second place was the labor income in cities and towns and the support from children and a few other relatives in counties, while for the female, the second largest proportion was the support from children and a few other relatives in cities, pension in towns, and labor income in counties. From the macroeconomic perspective, the male elderly populations were more independent, and the female were more dependent, according to their structures of the economic income sources. The different structures of economic sources directly influence their economic income level and their economic status in the family.

### 3.1.4.2 Economic Income

The economic income of the elderly population is the basis for the solution to the elderly problems and the establishment of the old-age security system. Due to the underdeveloped productivity and the policy of low salaries and more employment in the previous long period, the pension for the elderly population is not high and the economic income of the total elderly population is low. According to the 1988 *China Statistical Yearbook* from the National Bureau of Statistics, the average annual income per urban resident in 1987 was 916 yuan, 76.33 yuan per month, compared to an average monthly income of 71 yuan for each elderly man in cities

and 54 yuan for elderly men in towns, respectively, 5 and 22 yuan lower than the average level of the total population, according to the sampled investigation of the elderly population in 1987. The average annual income per rural resident in 1987 was 463 yuan, 38.58 yuan per month, while the rural elderly population enjoyed a monthly income of 33 yuan per person, 5 yuan lower than the general level of rural residents. In terms of the comparison between the cities and villages, the average monthly per-capita income of the elderly population in cities was 17 yuan higher than towns and 38 yuan higher than in counties, while the income in towns was 21 yuan higher than in counties. If the average monthly income below 46 yuan was considered low income, 46–100 yuan as the medium income, and 101 yuan above as the high income, the low-income population accounted for 16.0 % of the total urban elderly population, compared to 36.7 % of the medium-income population and 27.3 % of the high-income population. The rank in cities was medium income, high income, and low income, while 20 % of the elderly population in cities had no income. By comparison, the rank in towns was medium-income (30.7 %), low-income (25.6 %), and high-income (19.6 %), while 24.1 % had no income. Compared to the cities, the proportion of the medium-income in towns was 6.0 % lower, the low-income was 9.6 % higher, the high-income was 7.7 % lower, and the proportion of no income was 4.1 % higher. The rank in counties was the low income, 80.7 %, which was 44.6 % higher than the sum of proportions of the low and no income in cities and 31.0 % higher than in towns; next was the medium income, 18.2 %, which was 18.5 % lower than cities and 12.5 % lower than towns; and finally high income, totaling 1.1 %, 26.2 % lower than cities and 18.6 % lower than towns. This reflected the great gap between the economic incomes of the urban and rural elderly population. The cities were dominated by the medium and high incomes, when the towns were dominated by medium and low income and the counties were dominated by the low income. However, considering the difference in the urban and rural price index and in the commercialization rate of the consumptions, the material difference will be narrowed.

The elderly above age 60 in 1987 were born before 1927 and joined society before 1949 to practice in different occupations and joined different jobs after the foundation of the People's Republic of China. Owing to different jobs and incomes, they enjoyed a very different welfare in their old age, which is reflected in the relation between their economic incomes and the age structure, as shown in Table 3.11.

As shown in Table 3.11, the rural and urban areas share both similarities and differences in the relation between the elderly population's economic income and age structure. In urban areas, the average monthly income of the elderly population is generally decreasing along with the increase of age. The proportion of no income was 14.1 % for the elderly aged 60–64, 23.6 % for 70–74, and 40.8 % for 80–84 in cities and was, respectively, 18.5, 27.1, and 36.7 % for the above three age groups in towns. The proportion of the low income below 45 yuan in cities was 11.3, 19.6, and 25.8 %, compared to 16.3, 30.9, and 43.6 % in towns. The overall trend for the proportions of medium and high incomes is decreasing along with the increase of age. The proportion of the medium income level of 46–100 yuan accounted for



**Table 3.11** Per-capita monthly incomes of the elderly population in different age groups (unit: %)

Urban or rural areas	Per-capita monthly income (yuan)	Total	Age 60–64	Age 70–74	Age 80–84
Cities	No income	20.0	14.1	23.6	40.8
	Below 45	16.0	11.3	19.6	25.8
	46–100	36.7	36.3	40.2	25.2
	Above 101	27.3	38.6	16.2	8.2
	Total	100.0	100.0	100.0	100.0
Towns	No income	24.1	18.5	27.1	36.7
	Below 45	26.6	16.3	30.9	43.6
	46–100	30.7	33.6	30.0	17.6
	Above 101	19.6	31.6	12.1	2.1
	Total	100.0	100.0	100.0	100.0
Counties	No income and income below 45	80.7	78.1	83.4	78.7
	46–100	18.2	20.4	15.8	20.3
	Above 101	1.1	1.6	0.8	1.0
	Total	100.0	100.0	100.0	100.0

36.3 % among the elderly aged 60–64 and 25.2 % for age 80–84 in cities and accounted for 33.6 and 17.6 % in towns, while the proportion of the high income level above 101 yuan declined from 38.6 to 8.2 % in cities and dropped from 31.6 to 2.1 % in towns. Actually, the high income took up the largest proportion in the age group of 60–64 in cities, followed by the medium income, which took up the largest proportion in towns, followed by the high income. The high and medium income took up 74.9 % of the incomes of the total population in cities and 65.2 % in towns. However, for the age group of 70–74, the medium income accounted for the largest proportion in cities, followed by no income, and the proportion of the high income accounted for the smallest group; the low income accounted for the largest proportion in towns, followed by the medium income, and the proportion of the high income also took up the smallest proportion. For the age group of 80–84, in cities, no income accounted for the largest proportion, followed by the low income, medium income, and high income, which was exactly contrary to the age group of 60–64; and in towns, the low income took up the largest part, followed by no income, medium income, and then high income. The overall trend for counties revealed that the proportions of the low income and no income were higher and the proportions of the medium and high income were lower in the higher age group, but the margin was not so obvious as the cities and towns. In addition, instead of the regular variation along with the increase of the age group, it showed no law in the change. For example, the proportion of the no and low income for the age group of 70–74 years was a little higher than 60–64, while the proportion of the age group of 80–84 was also a little higher than 60–64, but a bit lower than 70–74. The proportions of the medium and high income for the age groups of 70–74 and 80–84 were

both lower than the 60–64 age group, but the proportion in the age group of 80–84 was higher than 70–74. It was mainly a result from the different structures of economic sources for different age groups. As mentioned above, in the higher age groups, the proportion of the pension and labor work was lower and the proportion of the children's support was higher. As the pension took up a higher proportion in the incomes of the urban elderly population and the amount of the pension was greater in the lower age groups, the elderly population of a lower age enjoyed a much higher income in cities. However, in rural areas, since the pension only took up a small proportion, the elderly population mainly relied on their own labor work and their children's support. The labor income was generally not high in rural areas, but the children's incomes had increased along with the deepening reform and increase of the total income level. Therefore, the income of the elderly population in the higher age groups did not, evidently, decline; and the income gap between the lower age groups and higher age groups was not as large as in urban areas. However, the incomes of the higher age groups were comparatively lower than the lower age groups no matter in rural or urban areas, so priority will be given to the elderly population of the higher age groups in social security.

The urban and rural areas show some differences in the economic incomes of the male and female elderly population. The males enjoyed a much higher income than the females in urban areas. In cities, the proportion of no income was 2.8 % among the male elderly population and 35.3 % in the female, 32.5 % higher than the male; the low income accounted for 4.7 % among the males and 26.1 % among the females, 21.4 % higher than the males; the medium income accounted for 41.1 % among the male elderly and 32.9 % among the female, 8.2 % lower than the male; and the high income accounted for 51.5 % among the male and 5.7 % among the female, 45.8 % lower than the male. In towns, no income accounted for 4.3 % among the male elderly population and 41.7 % among the female, 37.4 % higher than the male; the low income accounted for 12.0 % of the male and 37.1 % of the female, 25.1 % higher than the male; the medium income accounted for 45.5 % among the male and 17.6 % in the female, 27.9 % lower than the male; and the high income accounted for 37.6 % among the male and 3.6 % of the female, 34.0 % lower than the male. It is clear that the per-capita monthly income of the male elderly population in urban areas is much higher than the female, as the medium and high income accounted for the large proportion of the male and the low and no income occupied the majority. However, in rural areas, the male and female elderly population showed no great difference in the monthly income. The low income accounted for 80.5 % of the male and 80.8 % of the female; the medium income accounted for 18.2 % of the male and 18.2 % of the female; and the high income accounted for 1.2 % of the high income and 1.0 % of the low income. Why do the economic incomes of the elderly population of different sexes differ slightly with each other in rural areas? This was also a result from the structure of the income sources. 62.9 % of the total economic incomes of the male elderly population in counties came from their own labor work, particularly the agricultural labor work within their powers, which were mostly auxiliary labor that could earn

a low income; and 58.1 % of the incomes of the female elderly population came from their children's support, which increased along with the growth of their children's incomes based on the rural economic reform. Therefore, the male and female elderly population in rural areas shares similar economic incomes. However, between the independent male and female elderly in rural areas, the male generally received higher incomes.

### 3.1.4.3 The Structure of Support

The support for the elderly population was closely related to, but not identical with, their economic income sources. The choices for the support modes in the investigation on the elderly population in 1987 were partly the same, but partly different, with the choices for the income sources, so the structure of the support is not the same with the economic income sources. The support modes for the elderly population in urban areas are divided into six types, including the wage income, pension, support from the spouse, support from children, support from relatives or friends, and government relief; and the support modes for the elderly population in rural areas are divided into another six types, including the labor income, support from the spouse, support from children, support from relatives or friends, government relief, and collective relief. Rural and urban areas enjoy similarities and differences at the same time. Situations in cities and towns are quite close. Pension was the main support mode, taking up 56.1 % in cities and 47.5 % in towns, with cities a bit higher than towns; the support from children took the second place, equaling 22.4 % in cities and 27.8 % in towns, with towns a bit higher than cities; the third place was the support from the spouse, taking up 13.0 % in cities and 14.3 % in towns, with towns a bit higher than cities; the wage income amounted 6.8 % in cities and 7.1 % in towns; and the sum of the support from relatives and friends and the government relief accounted only for less than 2 % in cities and more than 3 % in towns. The situation in counties was quite different. The support from children took up as high as 67.5 %, followed by 26.2 % of the labor income and 5 % of the support from the spouse, while the other three items only jointly amounted to less than 2 %. The elderly population in urban areas mainly relies on the support from the government and enterprises, while the elderly population in rural areas mainly relies on the children's support, which generally accords to the income sources of the urban and rural elderly population.

The elderly populations in different age groups show great differences in the support methods. According to the sampled investigation, the proportion of the children's support was higher in the higher age groups, while the proportion of other support methods was constantly declining, particularly the proportion of the pension in urban areas and the labor income of the elderly population in rural areas. For example, the proportion of the pension in cities was 63.7 % for the elderly aged 60–64, 51.3 % for the age group of 70–74, 29.5 % for 80–84, and 13.2 % for the elderly aged above 90 years; the proportion of the pension in towns was, respectively, 55.7, 43.7, 22.9, and 14.8 % for the abovementioned age groups. The proportion of

the children's support was 9.4 % for the elderly aged 60–64, 29.6 % for the age group of 70–74, 62.8 % for 80–84, and 83.8 % for the elderly aged above 90 years in cities, which exceeded the proportion of the pension in the age group of 75–79 years, and the proportion was, respectively, 11.8, 38.7, 65.4, and 74.1 % in towns, which exceeded the proportion of the pension in the age group of 75–79 years. In rural areas, the children's support accounted for, respectively, 45.2, 83.5, 95.1, and 95.8 % in the abovementioned four age groups. The labor income took the second place, which, respectively, amounted to 45.0, 12.7, 2.5, and 2.1 % for the abovementioned age groups. The proportion of labor income could not be compared to the children's support after the age of 70.

The elderly populations of different sexes also differ from each other. The proportion of the pension support for the male elderly population was higher than the female in urban areas. In cities, the pension took up 81.9 % of the male and only 33.1 % of the female; in towns, the pension took up 76.6 % of the support methods for the male and only 21.6 % of the female. However, the largest proportion of the support methods for the female elderly population was the children's support, which was 30.3 % higher than the male in cities and 34.7 % higher than the male in towns. In rural areas, the labor income accounted for 44.8 % for the male elderly population, compared to only 9.6 % for the female; the children's support took up 52.6 % for the male and 80.7 % for the female. In terms of the overall support methods for the elderly population, the male elderly population is more independent, while the female is more dependent.

#### **3.1.4.4 Economic Status**

Most of the members of the elderly population have their economic incomes and maintain in contact with social economic activities and family economic activities, as many of urban elderly receive pension and many of the rural elderly are involved in labor work. In addition, as affected by the traditional culture of China and the east, the aged are still respected and age discrimination is uncommon. Therefore, the elderly population still occupies a certain social position and plays a role in social and family economic life. See the economic status of rural and urban elderly population in their families based on the sampled investigation in Table 3.12.

As shown by Table 3.12, the economic roles of the elderly population in families were similar in towns and cities but were quite different between urban areas and counties. 40 % of the total elderly population in cities could dominate the family economy, a little higher than the towns, while only 18.7 % of the elderly in rural areas could dominate the family economy. Urban and rural areas showed no big difference in the proportion of dominating part of the family economy and dominating themselves, with the proportion of the urban elderly a little higher than the rural elderly. About 20 % of the elderly population in cities and towns had no dominance, compared to 50 % in counties. These facts demonstrated that the economic status of

**Table 3.12** Economic status of the elderly population in their families (unit: %)

	Cities	Towns	Counties
Dominate the family	41.5	39.9	18.7
Dominate part of the family	22.7	21.9	18.4
Dominate himself or herself	13.3	14.2	13.2
No dominance	18.5	20.5	49.7
Not clear	4.0	3.5	0.0
Total	100.0	100.0	100.0

the urban elderly population in families is much higher than the status of the rural elderly population in China. 80 % of the elderly population in urban areas can dominate or partly dominate the family economy or dominate themselves, while only a half of the elderly population in rural areas have dominance.

### ***3.1.5 Self-Supporting and Contributions: Employment and Occupation Structure of the Elderly Population***

Due to the population aging and the sharp increase of the elderly population, some developed countries have encountered challenges with the reemployment of the elderly population, becoming a new social problem. In the sampled investigation in 1987 on the elderly population above age 60, the 13 items listed for the employment of the elderly population included the original occupation of the elderly population, their retirement status, whether they continue with the original occupation, occupation of the reemployment, motive of the employment, reason for not being reemployed, desire to be reemployed or not, and reason for not working after retirement, in order to collect more complete data on the employment of the elderly population.

#### **3.1.5.1 Employment Rate**

The employment rate is the most important indicator for measuring the participation of the total population in social economic activities, while the employment rate of the elderly population directly reflects the scope and depth for the elderly population to become involved in social economic activities. Among the several indicators on the employment rate of the elderly population, the greatest importance shall be attached to the employment rate of the total elderly population aged above 60 and the reemployment of the elderly after retirement in urban areas, because the two

**Table 3.13** Total employment rate of the elderly population above age 60 (unit: %)

Cities			Towns			Counties		
Total	Male	Female	Total	Male	Female	Total	Male	Female
15.0	20.4	13.2	11.6	17.9	6.9	31.5	53.0	12.4

indicators truly represent the degree of the employment of the total elderly population. Since no retirement system is established in rural areas, the problem of the reemployment of the retired population does not exist in rural areas. The employment rate of the rural elderly population refers to the proportion of the rural elderly population that continues with labor work. See the total employment rate of the elderly population in 1987 in Table 3.13.

As shown by Table 3.13, the total employment rate of the elderly population above age 60 was higher in cities than in towns, regardless of the sex. Particularly, the employment of the female elderly population in cities was 6.3 % higher than in towns, while the rate of the male was only 2.5 % higher. Based on the comparison between the employment rates in rural and urban areas, the total employment rate of the elderly population in rural areas (which was actually the labor-force participation rate for the elderly population above age 60) was 16.5 % higher than the rate in cities and 19.9 % higher than in towns. In terms of the sexes, the employment rate of the male population rate was generally higher than the female, 7.2 % higher in cities, 11.0 % higher in towns, and 40.6 % higher in counties. In other counties, for example, the total employment rate of the elderly population above age 65 was 25.1 % in Japan in 1983, which belonged to a high level of employment rate. China's total employment rate was quite close to Japan, as the employment rate of the elderly population was lower in cities but higher in rural areas. This proved that China's employment rate was not low. Particularly in the rural areas, about 1/3 of the total elderly population and more than half of the male elderly population were involved in various occupations. On one hand, this reflected that a large number of the elderly in rural areas had to live on their own labor work due to the low productivity and backward agricultural production; and on the other hand, it pushed the rural elderly population to join various jobs, which played a positive role in the rural economy and self-development of the elderly population.

In terms of the reemployment of the elderly population in urban areas, the reemployment of the retired is drawing the most attention, for it shows to have a great impact. See the reemployment of the retired of the urban elderly population based on the sampled investigation on the nationwide elderly population in 1987 in Table 3.14.

Based on the comparison between Tables 3.13 and 3.14, the reemployment rate of the retired elderly above age 60 in urban areas was higher than the total employment rate of the urban elderly population, 3.0 % higher in cities and 1.6 % higher in towns. Meanwhile, the reemployment rate of the male elderly population after retirement was significantly higher than the female, 14.4 % higher in cities and

**Table 3.14** Reemployment rate of the retired elderly population above age 60 in cities and towns (unit: %)

Cities			Towns		
Total	Male	Female	Total	Male	Female
18.0	22.6	8.2	13.2	16.0	5.1

10.9 % higher in towns. It is notable that the reemployment of the retired elderly in various jobs is growing, along with the opening and invigoration of the economy and deepening reform of the labor personnel system. How should trend be viewed? For the elderly population, this trend can give play to the intelligence of the elderly population and enable them to contribute to the creation of social wealth and meanwhile make them invest their limited time and spirit to their work and enjoy the pleasures their work brings. From the societal perspective, this trend can make use of the labor resources of the elderly population in the labor work or social service, but this trend also brings some problems, since it will exert greater pressure on the overall social employment, especially in the next three decades when the working age population will sharply expand along with population aging. Based on the age structure in the sampled investigation on 1 % of the total population, conducted by the National Bureau of Statistics in China in 1987, the population between ages 15 and 59 amounted to 678.27 million, which will grow to about 731.10 million by 1990, 777.65 million by 1995, 817.21 million by 2000, 863.57 million by 2005, 900.63 million by 2010, 904.88 million by 2015, 905.04 million by 2020, and 892.32 million by 2025, according to the medium-level estimation of *The Population and Employment of China in 2000*. The working age population between ages 15 and 59 will constantly grow and only start to decline in 2020, but the population in 2025 will be 892.32 million, which is still 214.05 million bigger than the current population. Studies shall be conducted to manage the increasing pressure exerted by the sharp increase of the working age population and the reemployment of the elderly population.

### 3.1.5.2 Employment Motives

The motives for the reemployment of the elderly population bear some relation to the current retirement system. All states around the world share both similarities and differences in their retirement system. The retirement age of 60–64 occupies the largest proportion in major developed countries, taking up about 1/3 in Japan, the United States, and the United Kingdom; the second largest proportion was taken up by the retirement age of 65–69 in the United States and the United Kingdom, which was less than 1/5, and the retirement age of 50–59 in Japan, which took up about 1/4; and the retirement system of France was quite special for its great flexibility, where the retirement ages of 50–59, 60–64, and 65–69 all took up about more

**Table 3.15** Actual and expected retirement age of the elderly population in developed countries (unit: %)

		Japan	United States	United Kingdom	France
Actual retirement age	Age 50–59	26.5	17.5	13.7	25.9
	Age 60–64	36.8	31.6	34.0	26.5
	Age 65–69	17.3	25.12	2.4	27.7
Expected retirement age	Around age 60	18.8	15.6	49.6	46.8
	Around age 65	28.3	29.2	11.9	15.3
	Around age 70	23.1	12.3	0.8	2.3

Data source: *Data Related to the Problems of the Elderly*, from the Countermeasure Office of the Aged, the Office of General Services of Japan, 1985

than 1/4 of the population. Based on the investigation on the elderly population's awareness of employment, the Japanese strongly urged employment in the old age, with less than 1/5 of them hoping to retire around age 60, 1/4 of them hoping to retire around the age of 65, and about 1/4 of them hoping to retire around the age of 70; nearly half of the British and French elderly population hoped to retire around the age of 60, and only a small part of them wished to retire at 65, and even a smaller part of them required to retire at age 70; and the United States enjoyed a bit stronger awareness of employment, with about 1/3 of them requiring to retire around the age of 65, 1/6 hoping to retire at the age of about 60, and 1/8 hoping to retire at the age of about 70. See details in Table 3.15.

The current retirement age of China is generally 60 for the male and 55 for the female, with leeway for certain special industries. Then, what are the motives for the reemployment of the elderly population after retirement? The questionnaire in the sampled investigation on the nationwide elderly population in 1987 incorporated four aspects, including economic demands, desire to practice in their profession, spiritual ballast, and work demands. The results suggest different situations in cities and towns. The primary motive for the reemployment for the elderly population after retirement in cities was economic demands, i.e., to satisfy the needs for survival, which took up 34.0 %; followed by the work demands, taking up 28.1 %; then the desire to practice their profession, 20.0 %; and, lastly, the spiritual ballast, 17.9 %. However, the primary motive for reemployment in towns was the work demands, taking up 36.6 %; and then followed by the economic demands, 32.9 %, spiritual ballast, 20.9 %, and practicing the profession, 9.6 %. Some developed countries were similar to China, while others showed great differences, according to the investigation on the reasons for the employment of the elderly population aged above 60 conducted in the early 1980s in some developed countries. See details in Table 3.16.

Table 3.16 shows that the proportion of China's elderly population continuing to work to increase the economic incomes was similar to the United States and Japan and much higher than the United Kingdom and France; except Japan, the United States, the United Kingdom, and France shared a much higher proportion of the elderly working for the interests and demands of the work. In addition, the health cause has



**Table 3.16** Causes for employment of the elderly population in the United States, the United Kingdom, France, and Japan (unit: %)

	United States	United Kingdom	France	Japan
Increasing the income	35.4	26.6	22.4	38.7
Interested in work	43.9	41.2	40.8	12.2
For health reason	14.2	17.6	20.4	33.1
Making friends	3.3	5.6	8.4	7.2

Data source: *Data Related to the Problems of the Elderly*, from the Countermeasure Office of the Aged, the Office of General Services of Japan, 1985

**Table 3.17** Reasons for non-employment of the elderly population after retirement in cities and towns (unit: %)

	Cities	Towns
Cannot find a job	6.07	5.93
No economic demands	4.90	4.52
Enjoy their retirement	34.68	45.05
Help the children	16.42	12.84
Health reasons	34.27	22.67
Take care of the spouse	3.65	3.00
Total	100.0	100.0

become a main contributing factor to the employment of the elderly population in developed countries, and the proportion was similar to China, as the spiritual ballast was linked to the health cause. Generally, since China is transforming from a society of adequate food and clothing to a well-off society, the reemployment of the elderly population mainly aims to meet the economic demands. This law was also reflected by the investigation on the reasons for the non-employment of the retired elderly. See Table 3.17.

As shown by Table 3.17, the main reasons for non-employment of the elderly population after retirement in urban areas included resting and enjoying their retirement, lack of ability to work because of health reasons, or because of helping take care of their grandchildren so that their children could put all their efforts into social work. These were the three major reasons for the non-employment of the elderly population after retirement, which jointly took up 85.37 % in cities and 80.56 % in towns. In terms of the economic reasons, 60 % of them had economic demands but could not find jobs, while 40 % of them did not need to work to earn money. In rural areas, the economic demands accounted for a proportion as large as 81.9 % of the elderly that continued with the agricultural work within their power, compared to a relatively low proportion of spiritual ballast and desire to practice their profession.

Since a large number of the aged continued to work after retirement to earn their lives, the motive for the reemployment of the elderly population varied along with the different income levels. The relation between the motives for the reemployment of the elderly population and their average monthly incomes is shown in Table 3.18.

Table 3.18 shows the overall trend for the variation of the motives for the employment of the elderly population based on the change of the per-capita monthly income.

**Table 3.18** Motives for the reemployment of the elderly population of different average monthly incomes (unit: %)

		26–45 yuan	71–100 yuan	151–200 yuan
Cities	Economic demands	65.2	41.8	30.7
	Practicing profession	21.7	18.8	23.5
	Spiritual ballast	4.4	11.3	20.0
	Work demands	8.7	28.0	25.8
	Total	100.0	100.0	100.0
Towns	Economic demands	76.5	50.8	18.2
	Practicing profession	17.7	3.1	15.2
	Spiritual ballast	5.9	18.5	24.2
	Work demands	0.0	27.7	42.4
	Total	100.0	100.0	100.0
Counties	Economic demands	82.6	80.0	54.6
	Practicing profession	6.3	5.2	27.3
	Spiritual ballast	2.7	2.6	9.1
	Work demands	8.4	12.2	9.1
	Total	100.0	100.0	100.0

Note: This refers to the reemployed elderly after retirement in cities and towns and refers to the elderly aged above 60 that continued with the labor work in counties

The proportion of the economic demands declined along with the increase of the per-capita income, while the proportion of other motives, especially the spiritual ballast and work demands, increased along with the increase of the per-capita income. The proportion of the economic demands in the motives for the reemployment in cities was 23.4 % lower in the per-capita income group of 71–100 yuan than in the per-capita income group of 26–45 yuan and was 11.1 % lower in the group of 151–200 yuan than in the group of 71–100 yuan, compared to, respectively, 25.7 and 32.6 % in the above per-capita income groups in towns and, respectively, 2.6 and 25.4 % lower in counties. Based on the comparison of the proportion of the economic demands in the per-capita monthly income of 151–200 yuan and 26–45 yuan, the towns saw the most evident decline by 58.3 %, which illustrated that the decline of the proportion of the economic demands, along with the increase of economic incomes, was the most obvious in towns, followed by cities with a decline of 34.5 % and then followed by counties with a decline of 28.0 %. This situation proved that along with the increase of the economic incomes, the proportion of the economic demands in the motives for reemployment constantly declined, and the proportion of other motives increased correspondingly. In the abovementioned three income groups, the proportion of the spiritual ballast had increased by, respectively, 6.9 and 8.7 % in cities along with the increase of the income, compared to, respectively, 12.6 and 5.7 % in towns, and the proportion slightly declined at first and increased by 22.1 % in counties. Based on the comparison between the income group of 151–200 and 26–45 yuan, the county saw the most evident increase of the proportion of the spiritual ballast (by 21.0 %), along with the increase of income,

followed by 18.3 % in towns and 15.6 % in cities. The proportion of the work demands also increased significantly along with the increase of the income in urban areas. The cities saw an increase by 19.3 % and then a slight decline by 2.2 % in the abovementioned three income groups, compared to the increase by 27.7 % and a slight decline by 14.7 % in towns. Based on the comparison between the income groups of 151–200 and 26–45 yuan, the proportion of the work demands had increased by 42.4 % in towns and 17.1 % in cities.

In terms of the reemployment of the elderly population, the motives for employment also vary based on the different original occupations of the elderly population. Referring to the population census in 1982, the sampled investigation on the nationwide elderly population in 1987 divided the original occupations into eight types, including professional personnel; cadres; staff; businessmen; servicemen; labors in farm, forestry, animal husbandry, and fishery; and production workers. The motives for the reemployment of the elderly population in urban areas of these eight occupations shall be studied separately. Western developed countries divide workers into “white collar” and “blue collar” according to the essence of their occupations, and the variation of the industrial structure and the occupational structure can be reflected by the variation of the composition of the “white-collar” and “blue-collar” workers. Since China’s industrial and occupational structure is transforming from the backward to the advanced structure, it cannot appropriately conclude the overall situation in China by only dividing into the “white-collar” and “blue-collar” workers. The “grey-collar” workers exist between the “white-collar” and “blue-collar” workers. According to the practical conditions of China, the professional personnel, cadres, and staff can be considered the “white-collar” workers; the businessmen and servicemen can be considered the “grey collar”; and the labors in farm, forestry, animal husbandry, and fishery and production workers can be considered the “blue-collar” workers. The elderly population retired from the three different occupations varied greatly in their motives for reemployment. The major motive for the reemployment of the “white-collar” elderly workers was the work demands, taking up a proportion of about 40 %. The spiritual ballast took up, respectively, 36.8 and 32.6 % among the professional personnel and cadres; and the economic demands took up 24.1 % among the staff. The major motive for the reemployment of the “grey-collar” and “blue-collar” elderly workers was the economic demands, taking up over 42 %. The work demands occupied 27.9 and 23.4 %, respectively, among the businessmen and servicemen; and the spiritual ballast, desire to practice their profession, and work demands only accounted for a small proportion among the “blue-collar” workers, which showed a significant difference with the “grey-collar” workers. Therefore, under the background of the economic demands as the main motive for the employment of the elderly population, the elderly of different occupations had different motives for the employment. Work demands mainly contributed to the reemployment of the “white-collar” workers, including the professional personnel, cadres, and staff, while the economic demands mainly contributed to the reemployment of the “grey-collar” and “blue-collar” elderly workers.

### 3.1.5.3 Composition of Occupations and Industries

Due to the differences between the current rural and urban economic structures, the sampled investigation of the elderly population in 1987 conducted an investigation on the composition of the occupations for the reemployment of the elderly population above age 60 in urban areas, which divided the occupations into eight categories, such as the professional personnel and production workers. In rural areas, the industrial composition was investigated on the elderly population continuing with the labor work, which divided into 11 industries, including farm, forestry, commerce, and food and beverage industry. See details in Tables 3.19 and 3.20.

Tables 3.19 and 3.20 present a comparatively complete employment composition of the elderly population as well as the comparison between the original and current occupations of the retired elderly. Two points shall be emphasized here:

Firstly, the production-oriented employment structure of the elderly population accords to the current industrial structure of the state and the employment structure of all the labors. By the end of 1987, China's total number of social labors had reached 527.83 million, including 317.20 million of labors in farm, forestry, animal husbandry, and fishery, which accounted for 60.1 %; 93.43 million employees in industry, taking up 17.7 %; 26.55 million of employees in commerce, public food and beverage service, materials supply and sales, and storage industry, taking up 5.0 %; 24.19 million employees in the construction industry, taking up 4.6 %; 13.75 million employees in education and culture (art, radio, TV, etc.), taking up 2.6 %; and employees in other industries, which accounted for less than 1.8 % for each industry. Based on the division of the three industries, the primary industry accounted for 60.1 %, the secondary industry accounted for 22.3 %, and the tertiary industry accounted for 17.6 %. Based on the division of the material production and nonmaterial production, the former took up 90.2 % and the latter took up 9.8 %. This was the overall employment structure of all the labors, which will definitely restrict the direction, scale, and composition of the employment of the elderly population, especially on the production employment. According to Table 3.19, the production workers occupied the largest proportion among the reemployment of the elderly population in urban areas, which took up 27.0 % in cities and 22.5 % in towns. This demonstrated the industrial production as the main characteristic of the employment of the elderly population in urban areas. This characteristic was even more outlined in rural areas, as the elderly population involved in the farming industry accounted for 78.2 % of the total labor population and the proportion of the male elderly population involved in the farming industry even reached as high as 80.8 %, suggesting production was the main characteristic for the work of the elderly population in rural areas. Table 3.20 also shows that only 4.0 % of the rural elderly population was involved in commerce and food and beverage and most of them continued with the labor work.

Secondly, compared to the original occupations, some of the elderly changed their line of work, leading to the occupational transfer in the reemployment of the elderly population. Based on the composition of the current occupations of the elderly population, the elderly who originally worked as production workers mainly



**Table 3.20** Composition of the industries that the elderly population involved in counties (unit: %)

	Total	Male	Female
Farm	78.2	80.8	68.1
Forestry	0.7	0.8	0.3
Animal husbandry	6.8	4.8	14.8
Fishery	0.8	1.0	0.3
Industry	1.1	1.3	0.4
Construction industry	0.3	0.4	0.0
Transportation industry	0.1	0.2	0.0
Production labor	1.8	1.9	1.6
Commerce	2.6	2.7	2.5
Food and beverage	1.4	1.5	0.9
Others	6.1	4.8	11.1
Total	100.0	100.0	100.0

constituted the current production workers, accounting for 90.8 % in cities and 92.9 % in towns, with only a few transferred from other occupations; the elderly who originally worked as professional personnel mainly constituted the current professional personnel, taking up 89.3 % in cities and 95.5 % in towns, with only a few transferred from other occupations; and most current cadres originally worked as the cadres, taking up 86.5 % in cities and 85.7 % in towns, with only a few transferred from other occupations. The occupational transfer was most evident in the occupations of the serviceman, followed by the businessman and staff. For the serviceman, only 34.0 % of the current servicemen originally worked as servicemen in cities, while the other 66.0 % were transferred from other occupations, including 48.1 % from original production workers; and only 53.9 % of the current servicemen originally worked as servicemen in towns, while 35.9 % were transferred from the production workers. Regarding the businessmen, 46.4 % of the current businessmen originally worked as businessmen in cities, while 40.0 % were transferred from the original production workers and 5.5 % were transferred from the original staff; and 56.8 % of businessmen originally worked as businessmen in towns, while 18.9 % were transferred from the original production workers and 3.1 % were transferred from the original professional personnel. In terms of the staff, 49.8 % of them originally worked as staff in cities, while 12.2 % were transferred from original production workers, 16.9 % from original cadres, and 9.5 % from original professional personnel; and 69.1 % of the staff in towns worked as staff previously, while 9.5 % were transferred from the original professional personnel, 9.5 % from original cadres, and 7.1 % from original production workers. For the transfer direction and quantity, most production workers transferred to servicemen, followed by the transfer to businessmen and staff; most professional personnel transferred to staff; and most cadres also transferred to cadres. Based on the division of the three industries, the elderly population in urban areas mainly transferred from the secondary to the tertiary industry or adjusted in the different occupations within the tertiary industry according to the comparison between the

original and current occupations. The overall elderly population in both rural and urban areas mainly transferred from the primary and secondary industry to the tertiary industry. Therefore, on one hand, the reemployment of the elderly population caused competition with the working age population in the labor market and job opportunities and aggravates the excess of supply over demand; and on the other hand, the elderly were mainly transferred to the tertiary industry and can perform the jobs appropriate for the elderly that the youths feel unwilling to do, such as working as a security guard. This is an important method to solving the reemployment of the elderly population, since these jobs will make best of the potentials of the elderly and avoid the competition with the youths.

### ***3.1.6 Enhancement of Health and Energy: Medical Care, Health, Accommodation, and Activities of the Elderly Population***

How to valuably spend their time is a question constantly posed to the elderly. In addition to the marriage, family, income, and support, it is also directly related to the health conditions of the elderly population and the objective environment of their lives. It is necessary to research on the medical care, health, life management, accommodation, and activities of the elderly population.

#### **3.1.6.1 Medical Care**

After the foundation of the People's Republic of China in 1949, along with the development of the national economy and the medical and health services, the free medical care has been provided for the units of whole-people ownership and gradually expanded to the half-free medical care for employees' families and the joint medical care held by collective and individual units. The medical security system with Chinese characteristics has been initially established. Generally, the employees that enjoyed the benefits of medical care during their working life also enjoy the same or even better benefits in their old age. However, different medical care systems for the elderly population have been formed due to the low productivity of China and the different economic systems in rural and urban areas. The methods of payment on the medical expenses for the elderly population in cities, towns, and counties according to the sampled investigation in 1987 are listed in Table 3.21.

As shown in Table 3.21, for the whole elderly population in China, the proportion of free and half-free medical care reached 30 %, compared to 70 % of medical care at an individuals' own expense, while the free medical care accounted for 20 %, compared to 80 % of the medical care of half-free and at personal expense. The free and half-free medical care has reached a certain proportion, despite a low level. However, great gaps were found between the rural and urban areas and between cities and towns. The proportion of the free medical care in cities was 15.5 % higher than in towns, and the proportion in towns was 33.5 % higher than in

**Table 3.21** The composition of the payments on medical care for the elderly population (unit: %)

	Nationwide	Cities	Towns	Counties
At own expenses	71.1	26.7	45.1	94.7
Half-free	9.9	22.1	19.2	3.1
Free	18.4	51.2	35.7	2.2
Total	100.0	100.0	100.0	100.0

counties; the proportion of the half-free medical care in cities was 2.9 % higher than in towns, and the proportion in towns was 16.1 % higher than in counties; and the proportion of the medical care at personal expense in counties was 49.6 % higher than in towns, and the proportion in towns was 18.4 % higher than in cities. In sum, the elderly population in cities mainly relied on free and half-free medical care, while the two kinds of medical care (free and half-free) took up 3/4 of the total medical costs; the free and half-free medical care accounted for about 1/2 in towns; and the elderly population in counties mainly relied on the medical care at their own expense, which took up as high as 95 %. The gap between the compositions of the payments on medical care in rural and urban areas has its historical background and cannot be eliminated within a short time, showing a direct impact on the health of the elderly population.

The composition of the payments on the medical costs for the elderly population is strongly related to the age composition of the elderly population. The proportion of the medical care at personal expense is greater, and the proportion of the free medical care is smaller in the higher age group, while the proportion of the half-free medical care sees little change. According to the investigation on the elderly population in 1987, the medical care at personal expense accounted for 65.4 % in the age group of 60–64, 76.5 % in 70–74, 82.4 % in 80–84, and 86.5 % in age group above 90; the free medical care accounted for 24.9 % in the age group of 60–64, 13.7 % in 70–74, 7.8 % in 80–84, and 3.7 % in the age group above 90; and the half-free medical care accounted for 6.7 % in the age group of 60–64, 9.8 % in 70–74, 9.3 % in 80–84, and 9.8 % in the age group of over 90. According to the sampled investigation, along with the increase of the age of the elderly population, the proportion of the free medical care declined, while the proportion of the medical care at one's own expense raised. The cities, towns, and counties presented the same trend, which reflected the expansion of the free medical care system over time.

The compositions of the medical care payments show significant differences for different sexes. Generally, the proportion of the medical care paid from personal expenses of the female elderly population was higher than the male, and the proportion of the free medical care of the male was higher than the female. According to the sampled investigation, the medical care at own costs accounted for 9.0 % for the male elderly population and 42.5 % for the female in cities, with the female 33.5 % higher than the male; the medical care at own costs accounted for 17.7 % for the male and 69.3 % for the female in towns, with the female 51.6 % higher than the male; and it accounted for 92.7 % for the male and 96.5 % for the female in counties, with the female 3.8 % higher than the male. The situation of the free medical



care was the exact opposite. The free medical care accounted for 79.1 % for the male and 26.4 % for the female in cities, with the male 52.7 % higher than the female; this accounted for 60.5 % for the male and 13.9 % for the female in towns, with the male 46.6 % higher than the female; and it accounted for 4.3 % for the male and 0.3 % for the female in counties, with the male 4.0 % higher than the female. By comparison, the male elderly population enjoyed a high level of free medical care in cities. Since the proportion of the free medical care was too small in rural areas, the gap between the male and female was irrelevant.

The sampled investigation also included the investigation on the annual medical costs borne by the elderly population. 25.4 % of the elderly population in cities bore no medical cost, owing to the totally free medical care or generally healthy condition of the elderly population; 19.8 % of them bore a medical cost below 10 yuan, 23.0 % bore a medical cost between 11 and 50 yuan, 8.0 % paid a medical cost between 51 and 80, 10.6 % paid 81–150 yuan, and 13.2 % paid above 151 yuan. Among the elderly population in towns, 14.9 % bore no medical cost, 17.0 % paid below 10 yuan, 27.6 % paid 11–50 yuan, 12.0 % paid 51–80 yuan, 13.3 % paid 81–150 yuan, and 15.2 % paid above 151 yuan. Among the elderly population in counties, 54.7 % paid below 10 yuan, 29.8 % paid 11–5 yuan, 9.1 % paid 51–100 yuan, and 6.4 % paid above 101 yuan. The general medical cost of an elderly individual is not great, but the elderly population in regions of underdeveloped economy and low income, especially those in rural areas, found difficulties in seeing a doctor. According to the sampled investigation, 68.5 % of the aged in urban areas had no difficulty in seeing a doctor, and 31.5 % had difficulties such as long travel distance or mobility problems in seeing a doctor, including 14.3 % with economic difficulties. 64.2 % of the elderly population in towns had no difficulty, and 20.3 % of them had economic problems in seeing a doctor, 6.0 % higher than the cities. Only 5.2 % of the elderly population in counties found no difficulty in seeing a doctor, while 94.8 % had difficulties of different degrees, including 61.8 % of economic difficulties. This proved that it was a huge burden for the elderly population in rural areas to see a doctor due to lack of medical resources and low economic income. The cause came from the backward rural economy and low economic income of the elderly population, leading to their weak security. Moreover, the elderly population in rural areas relies increasingly on their children and therefore has a low family status, so some of them cannot accept treatment when they are ill. In addition, the slow development of the medical care and health services in rural areas cannot meet the sharp increase of the total population and elderly population.

### 3.1.6.2 Health

According to the sampled investigation, 16.3 % of the elderly population enjoyed excellent health conditions, 28.3 % were in good health, 27.9 % were of average health, 17.6 % were in poor health, 9.3 % were very poor, and 0.7 % was unknown. The excellent and good health conditions took up 44.6 %, 17.7 % higher than the total proportion of the poor and very poor health conditions (26.9 %). Generally,

1/2 of the elderly were healthy, 1/4 of them were in normal health, and more than 1/4 were of poor health. Different than other indicators, the elderly populations in urban and rural areas shared similar health conditions. For example, the elderly population in excellent health condition accounted for 15.0 % in cities, 13.5 % in towns, and 17.5 % in counties, with counties a little higher than cities and towns; the population in good health condition accounted for 30.6 % in cities, 32.4 % in towns, and 26.3 % in counties, with the cities and towns a little higher than the counties; the elderly population in poor health condition accounted for 18.0 % in cities, 18.7 % in towns, and 17.2 % in counties, very close with each other; and the elderly population in very poor health conditions accounted for 10.6 % in cities, 11.4 % in towns, and 8.2 % in counties, showing no significant difference. Comprehensively, the proportions of the aged in good health condition and weak health condition in cities and towns were higher than the counties, while the proportion of the elderly in normal health condition was higher in counties, 4.9 % higher than in cities and 6.6 % higher than in towns. Objectively, the elderly population in rural and urban areas enjoyed similar health conditions, and generally the proportion of those in excellent and good health conditions accounted for a large proportion.

The male and female elderly populations vary in health conditions. The proportion of the excellent and good health conditions accounted for 49.4 % of the male elderly and 42.3 % of the female elderly in cities, with the male 7.1 % higher than the female; the proportion accounted for 49.5 % of the male elderly and 42.7 % of the female in towns, with the male 6.8 % higher than the female; and the proportion accounted for 47.7 % of the male and 40.4 % of the female in counties, with the male 7.3 % higher than the female. The proportion of the poor and very poor health conditions accounted for 31.2 % of the female elderly and 25.6 % of the male in cities, with the female 5.6 % higher than the male; this proportion accounted for 32.6 % of the female and 27.2 % of the male population, with the female 5.4 % higher than the male; and the proportion accounted for 27.3 % of the female and 23.3 % of the male, with the female 4.0 % higher than the male population.

Many factors contribute to the health conditions of the elderly population. The subjective causes include genetics, especially genetic disease, and the age factor, as the older may be weaker with regards to health conditions. Regarding the objective reasons, economic income and medical conditions contribute to the health conditions of the elderly, as the higher economic incomes and better medical conditions are more favorable for the prevention and treatment of diseases; the employment and social activities of the elderly also influence their health conditions, because they will feel more valuable and more energetic if they continue with the work or participate in certain social activities, which is favorable for their health; and the good accommodation environment that meets the living habits of the elderly will also benefit their health conditions. According to the sampled investigation, the most important among that factors that contribute to the health conditions of the elderly was the economic incomes and medical conditions, since these two factors directly related to the nutritional status of the elderly and whether they could afford to see a doctor when they were ill. Therefore, it was a fundamental task to research on economic incomes and health conditions. Figures 3.3, 3.4, and 3.5 show the results of the sampled investigation on the elderly population in 1987.

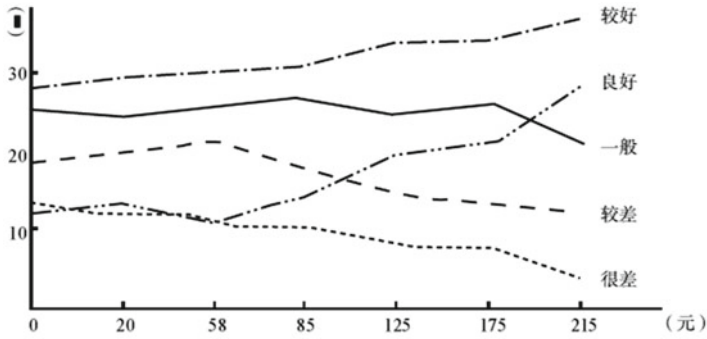


图 3 市老年人口人均月收入与建康状况

较好 Good  
 良好 Excellent  
 一般 Normal  
 较差 Poor  
 很差 Very poor  
 (元) (Yuan)

Fig. 3.3 Per-capita monthly income of the elderly population and their health conditions in cities

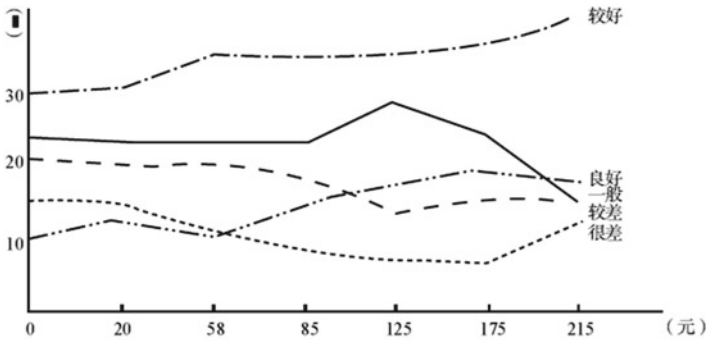


图 4 镇老年人口人均月收入与建康状况

较好 Good  
 良好 Excellent  
 一般 Normal  
 较差 Poor  
 很差 Very poor  
 (元) (Yuan)

Fig. 3.4 Per-capita monthly income of the elderly population and their health conditions in towns

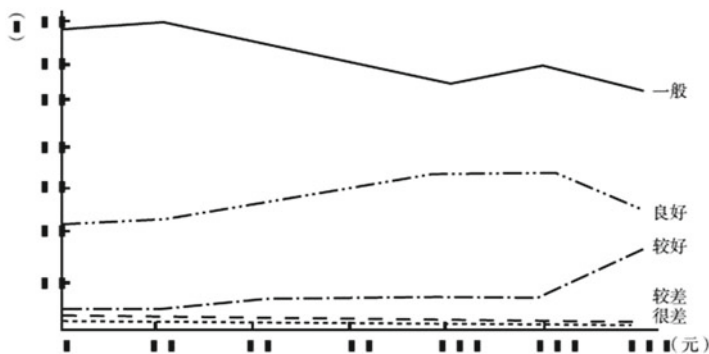


图 5 县老年人口人均月收入与健康状况

- 1539 一般 Normal  
 1540 良好 Excellent  
 1541 较好 Good  
 1542 较差 Poor  
 1543 很差 Very poor  
 1544 (元) (Yuan)

Fig. 3.5 Per-capita monthly income of the elderly population and their health conditions in counties

According to Figs. 3.3, 3.4, and 3.5, the proportion of the excellent and good health conditions was larger and the proportion of the poor and very poor health conditions was smaller in the elderly population of higher per-capita monthly income. For example, when the per-capita monthly income of the elderly population amounted to respectively 20, 85, and 125 yuan, (a) the proportion of the elderly in excellent health condition was respectively 12.3, 13.1, and 19.1 % in cities; respectively 12.1, 14.9, and 17.0 % in towns; and respectively 24.1, 32.6, and 35.3 % in counties; (b) the proportion of the elderly in good health condition was respectively 29.1, 30.6, and 33.4 % in cities; respectively 29.9, 34.0, and 33.9 % in towns; and respectively 4.4, 6.7, and 7.7 % in counties; (c) the proportion of the poor health conditions was respectively 20.1, 18.7, and 14.7 % in cities; respectively 19.7, 18.9, and 13.7 % in towns; and respectively 0.7, 0.6, and 0.6 % in counties; and (d) the proportion of the elderly in very poor health condition was respectively 13.2, 10.3, and 8.4 % in cities; respectively 14.8, 8.8, and 7.5 % in towns; and respectively 0.4, 0.5, and 0.6 % in counties, due to the small number of people responding to this investigation item in counties. It was very evident that the proportion of the elderly in good health condition was larger among the elderly population with a higher income and the proportion was smaller among the elderly population with a lower income.

This is because the income directly decides the nutritional status and medical conditions of the elderly population. For example, see the nutritional status of the elderly population of different incomes in cities in Fig. 3.6.

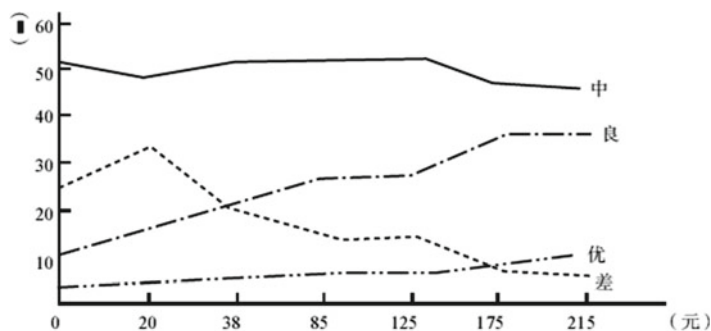


图6 市老年人口人均月收入与营养状况

中 Medium  
 良 Good  
 优 Excellent  
 差 Poor  
 (元) (Yuan)

Fig. 3.6 The per-capita monthly income of the elderly population in cities and their nutritional status

As shown in Fig. 3.6, the nutritional status of the elderly population in cities had a very close connection to the per-capita monthly income. The proportion of the excellent and good nutritional status was raised, and the proportion of the poor nutritional status declined along with the increase of the income level. Among the elderly population with a monthly income of 20, 85, and 125 yuan, the excellent nutritional status respectively accounted for 2.8, 6.2, and 5.9 %; the good nutritional status respectively accounted for 15.8, 26.8, and 27.1 %; and the poor nutritional status respectively accounted for 33.1, 14.6, and 13.2 %. The situation was similar in towns and was more outlined in counties. Due to low productivity and people only living with adequate food and clothing, the economic income directly dictated the health conditions of the elderly population. In addition, the elderly population with a higher income was more able to see a doctor when they became ill and therefore could heal; but many of the elderly with lower incomes could not afford to see a doctor, which greatly affected their health conditions. For example, only 43.9 % of the elderly population with a per-capita monthly income between 16 and 25 yuan had no difficulty in seeing a doctor, compared to 77.5 % among the elderly with a monthly income of 71–100 yuan and 81.8 % for 101–150 yuan. On the contrary, the proportion of the elderly that could not afford seeing a doctor was 37.6, 4.4, and 2.0 %, respectively, among the monthly income of 16–25, 71–100, and 101–150 yuan. When society still cannot provide the medical insurance for the entire elderly population, the income of the elderly population is the deciding factor on whether they can be treated and heal.

**Table 3.22** Life management and assistance for the elderly population (unit: %)

	Nationwide	Cities	Towns	Counties
Self-management	83.8	86.6	86.6	82.2
Rely on the spouse	3.5	5.3	5.3	2.4
Rely on children	11.9	6.9	6.7	14.8
Rely on relatives and friends	0.5	0.5	0.5	0.5
Rely on nurses	0.1	0.3	0.4	0.0
Rely on neighbors	0.1	0.2	0.4	0.0
Rely on society	0.1	0.2	0.1	0.1
Total	100.0	100.0	100.0	100.0

### 3.1.6.3 Life Management

The life management of the elderly population is directly linked with their health condition. In China, the life management of the elderly population mainly relies on the elderly themselves but meanwhile partly relies on children and assistance based on China's traditional culture and the family scale and type of the elderly population. According to the sampled investigation in 1987, the life management of the elderly population and the comparison among the cities, towns, and counties are shown in Table 3.22.

According to Table 3.22, 83.8 % of the elderly population above age 60 managed their own lives, and the proportion was higher in urban areas and lower in rural areas. This reflected the high ability of daily life of the elderly population. The life management of 11.9 % of the total elderly population relied on children, compared to only 6.9 % in cities, 6.7 % in towns, and 14.8 % in counties, which demonstrated that rural elderly population relied more on their children in their daily life. The life management of 3.5 % of the total elderly population relied on the spouse, which was 5.3 % in cities and towns and 2.4 % in rural areas. The rest relied on care provided by relatives, nurses, neighbors, and society, which occupied less than 1 % in total and was higher in urban areas and lower in rural areas. However, the reliance on the care of nurses, neighbors, and society will rapidly develop along with the deepening reform of the social security system. The nursing home for the elderly and various kinds of nursing homes will play a more important role in the future.

The ways of life management of the elderly population of the sexes exhibit certain differences. For the male elderly population, the proportion of self-management was higher, the reliance on children was lower, and the reliance on the spouse was higher; and for the female elderly population, the proportion of self-management was lower, the reliance on children was higher, and the reliance on the spouse was lower. The proportion of the self-management of the elderly population was 87.2 % of the male and 86.2 % of the female in cities, with the male 1.0 % higher than the female; the proportion was 85.6 % of the male and 79.2 % of the female in counties, with the male 6.4 % higher than the female. The proportion of the reliance on the children's care was 3.7 % of the male and 9.8 % of the female in cities, with the

female 6.1 % higher than the male; and the proportion was 10.7 % of the male and 18.4 % of the female in counties, with the female 7.7 % higher than the male. The proportion of the reliance on the spouse's care was 8.3 % of the male and 2.6 % of the female in cities, with the male 5.7 % higher than the female; and the proportion was 3.1 % of the male and 1.9 % of the female in counties, with the male 1.2 % higher than the female. This revealed that the male was more dependent on the spouse than the female in the life management of the elderly population. Therefore, a way to solve the life management problem of the lonely aged is to reduce the proportion of the single elderly and match more old couples.

#### 3.1.6.4 Accommodation

It is difficult to obtain the accurate accommodation conditions and area of the elderly population since many of the aged live with their children or grandchildren, in addition to the complexity of the nonstandard accommodations. According to the sampled investigation of the elderly population in 1987, if the per-capita living space under 6 m<sup>2</sup> was considered the low level, 6–12 m<sup>2</sup> as the medium level, and the living space above 12 m<sup>2</sup> as the high level, the low, medium, and high level, respectively, accounted for 23.0, 49.7, and 27.3 % of the elderly population in cities; 14.1, 47.9, and 38.0 % in towns; and 10.1, 34.9, and 55.0 % in counties. The ratio of the low, medium, and high level of the living space was 1:2.2:1.2 in cities, 1:3.4:2.7 in towns, and 1:3.4:5.4 in counties. It can be seen that the per-capita living space for the elderly population in counties was higher than the towns and the living space in towns was higher than cities. The elderly population in rural areas enjoyed a larger living space compared to urban areas. The proportion of the per-capita living space under 4 m<sup>2</sup> reached as high as 5.0 % in cities, which was 2.8 % higher than the towns and 1.3 % higher than the counties.

However, the per-capita living space calculated based on the living area for each family member does not truly reflect the accommodation level of the elderly population, because the elderly living in a small, but separate, living area enjoyed much better accommodation conditions than those living in a large space but together with their children. 73.5 % of the aged in cities and 77.1 % of the aged in towns lived in a separate room; 18.2 % in cities and 17.2 % in towns lived together with another generation; 5.9 % in cities and 3.9 % in towns lived together with another two generations; and a minority of the elderly population, 2.4 % in cities and 1.8 % in towns, had no living room but slept in the corridor or hall. The proportion of the elderly population in rural areas living in a separate room was smaller. About half of the rural elderly population had favorable accommodation conditions and lived in a large, bright room of good environment, while the other half lived in poor accommodation conditions, including 1.7 % of them, without a living room. Generally, the accommodation conditions for the elderly population were not as good as the urban areas. The housing problem of the urban elderly population was more evident. According to the sampled investigation, a majority of the elderly population, 66.9 % of the elderly in cities, 71.9 % in towns, and 69.1 % in counties, had no problem

**Table 3.23** Time allocation of the activities of the elderly population in urban areas (unit: hour)

	Cities			Towns		
	Total	Male	Female	Total	Male	Female
Sleeping	8.6	8.6	8.6	8.9	8.7	9.0
Work	1.4	2.2	0.7	1.3	2.1	0.6
Study and reading	0.6	1.0	0.2	0.5	0.9	0.2
Sports	0.6	0.8	0.4	0.4	0.6	0.2
Watching TV	1.8	1.8	1.8	1.5	1.6	1.5
Other literary and art activities	0.6	0.8	0.5	0.6	0.9	0.4
Housework	3.5	2.1	4.7	3.5	2.3	4.5
Social communications	0.9	0.9	0.9	1.2	1.2	1.2
Others	6.1	5.8	6.4	6.1	5.7	6.4
Total	24.0	24.0	24.0	24.0	24.0	24.0

in accommodation; 19.6 % in cities, 17.7 % in towns, and 24.8 % in counties had some problems in accommodation, such as the small area, bad quality, or living in a room together with children or grandchildren; and 12.5 % in cities, 9.3 % in towns, and 5.3 % in counties had serious problems in accommodation, including the too narrow living space, living in a room together with other generations, living in dilapidated houses or shacks, or without a living room. The problem was obviously more serious for the elderly population in urban areas.

### 3.1.6.5 Activities

What do the aged do in their days? This is related to the economic development level of the state and the cultural traditions of the nation. According to the sampled investigation in 1987, the rural and urban elderly population's activities in a day are listed in Tables 3.23 and 3.24.

As presented in Tables 3.23 and 3.24, except the item of "others," sleeping accounted for the most of the daily activities of the elderly population, which took up 35.6 % of the whole day in cities, 37.0 % in towns, and 38.6 % in counties. The second place was taken by housework, occupying 14.4 % in cities, 14.4 % in towns, and 14.2 % in counties. The third was the literary and art activities in urban areas, taking up 12.4 % in cities and 10.5 % in towns; and the third was the production work in counties, taking up 9.3 %. The fourth place was the work in urban areas, taking up 5.5 % in cities and 5.3 % in towns; and the fourth place was taken by socializing with neighbors, taking up 7.9 %. Based on the comparison of the similarities and differences between the time allocation of the elderly population in urban and rural areas, the proportion of sleeping, production work, and others in cities was smaller than the rural areas, while the time spent on culture, sports, and entertainment in cities was three times that of the rural areas, which suggested a large gap between the rural and urban population in the cultural life. According to the sampled investigation, 31.4 % of the rural elderly population proposed to set up



**Table 3.24** Time allocation of the activities of the elderly population in urban areas (unit: h)

	Total	Male	Female
Sleeping	9.3	9.2	9.3
Production work	2.2	3.7	0.9
Housework	3.0	2.0	3.8
Literary and art activities	0.5	0.6	0.5
Watching TV	0.4	0.5	0.4
Study and reading	0.1	0.2	0.0
Socializing with neighbors	1.9	1.8	2.0
Others	6.6	6.2	7.0
Total	24.0	24.0	24.0

venues for recreational activities, which ranked the top of the “biggest difficulty” in the investigation. This showed the rural elderly population’s pursuit for the cultural life in the 1980s.

The biggest difference between the time allocation of the male and female elderly population lay in that the female elderly population spent much more time than the male on housework, 2.6 h more in cities, 2.2 h more in towns, and 1.8 h more in counties; the male spent much more time studying, reading, and literary and cultural activities than the female, 1.5 h more in cities, 1.7 h more in towns, and 0.4 h more in counties; and the male also spent more time on work and production labor than the female, 1.5 h more in cities, 1.5 h more in towns, and 2.8 h more in counties. This situation proved that though the female elderly population had seen an improvement of their social status and improved their ability to join the social activities and productive labors, they could not truly get rid of the restrictions in the housework. Based on the sampled investigation, 9.3 % of the female elderly population in cities regarded housework as the major difficulty, compared to 12.2 % in towns and 15.0 % in counties. It will take long-term efforts to liberate the female elderly population in rural and urban areas from the heavy burden of housework.

Along with the economic reform, opening, and invigoration, the development of the commodity economy, improvement of people’s living standard, and the enhancement of the health conditions of the elderly population, the ability of the elderly population to participate the social activities has significantly promoted. With the boundary of the cities and towns and the natural villages as the standard, the travel times of the elderly population reached 0.6 in cities, 1.0 in towns, and 6.3 times in counties. Due to the different definitions of travel, the travel times could not be compared between rural and urban areas in this way. However, this demonstrated that the current elderly population started to go out instead of staying home, which showed a significant change from earlier times. According to the sampled investigation, among the causes for the travel of the elderly population, the first place was taken by the visit to relatives and friends in cities, taking up 46.6 % in cities and 42.3 % in towns; and the first place in rural areas was to go to the fair, taking up 48.4 %. The second place was for research and studies in cities, accounting

for 17.2 and 16.5 % in towns; and the second place was visit to relatives and friends in counties, taking up 39.9 %. The third place was tourism in cities, taking up 13.8 %; researches and studies in towns, taking up 14.4 %; and tourism in counties, taking up 0.6 %. The points shall be noticed. Firstly, the high proportion of those going to the fair in the elderly population's activities reflected their close links to the commodity economy. The frequent travel of the elderly population to the trade market constituted a direct drive for the elderly population to join the social economic activities. Secondly, tourism has taken a certain proportion for the elderly population's travel, which broke the traditional pattern that the tourism was dominated by the youths in China. Some old men that have never traveled far started to visit the well-known mountains and rivers in their old age, including the rural elderly that became rich after reform and opening up. This is a refreshing development that breaks historical traditions. Moreover, the rapid development of the tourism of the elderly population reflected the transformation of the elderly population's activities from traditional to modern activities, which is the necessary result of the social modernization.

### **3.2 Principle for the Old-Age Security Reform in Rural Areas Under China's "Dual Economy"<sup>6</sup>**

There are many different opinions on how to reform the economic support and security for the elderly in rural areas: adhering to the family support, following the socialized old-age support, or learning from international experiences. Further studies should be conducted on the deciding role, characteristic, and variation of the "dual economy," which is the basis for the old-age security in rural areas.

#### ***3.2.1 Different Old-Age Security Mode in Urban and Rural Areas Based on the "Dual Economy"***

A person's life can be divided into three stages: youngster, adult, and elderly. The methods to obtain economic results and satisfy the consumption demands vary in different stages. Parents, relatives, and society raise the youngsters, while adults mainly rely on labor incomes to share the economic results. The elderly have three channels through which to obtain economic support. The first is to rely on their own personal savings and labor incomes in their old age; the second is the family's support, especially from the children, which is an informal behavior of people in the group; and the third is the social security, which is a formal behavior of the social group [20].

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<sup>6</sup>This article was originally published on the *Population Journal*, the 6th issue 2002.

China's current old-age security system is different in urban and rural areas. Cities (including towns, same below) center on the formal behavior of the social group, with personal and family behaviors as the assistance, while rural areas center on the informal behavior of people in group, i.e., the families and children's support, with the personal behaviors and formal behavior of the social group as assistance.

Under these circumstances, in 1987,<sup>7</sup> the support from pension accounted for 56.1 % and the children's support accounted for 22.4 % in cities; and the children's support took up 67.5 % and the pension took up 1.0 % in villages.

In 1992,<sup>8</sup> the pension accounted for 65.1 %, and other methods of support, including the children's support, accounted for 22.4 % in cities; and the pension equaled 5.8 % and other methods of support, including the children's support, took up 94.2 % in villages.

No specific data for the recent decade can be provided. However, the variation trend has shown that the proportion of the pension has increased slightly and the proportion of the children's support declined slightly. Cities still mainly rely on the formal behavior of the social group, while villages still rely on the children's support, which directly lowers the old-age security level in villages. According to an investigation in 1992, the average monthly income of the elderly population in rural areas only equaled to 28.3 % of the urban elderly, though the aged in cities had low incomes.

The differences in the old-age security system and level in rural and urban areas originated from China's structure of the "dual economy." China is known as a great country, featured with an ancient civilization. China was once an agricultural civilization. The self-sufficient natural economy had dominated China's agricultural society for several thousand years. With a negative historical inertia, the natural economy led to a low agricultural productivity and few surplus products. The largest and only "accumulation" of a common peasant was to raise the children to be a labor and establish their own families. Therefore, they would draw the costs for their old-age life from the "accumulation," and it was natural for the children to support the family.

China began the course of industrialization after the foundation of the People's Republic of China in 1949. The speed of the transformation from the traditional agriculture to modern agriculture was slow due to some setbacks in the course. After the reform and opening up, the transformation was facilitated. However, the agricultural productivity could not be improved in the short term, so the growth of the peasants' incomes was still slow and the gap between the rural and urban income had widened. Particularly, due to the large population, the small amount of arable land, and the underdeveloped productivity of China, the agricultural natural resources, production capitals, human capitals, and social capitals do not meet; the per-capita

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<sup>7</sup>Data source: "Data of the Sampled Investigation on the Elderly Population Aged Above 1987 in China", *The Chinese Journal of Population Sciences*, supplementary issue (1) 1988, P325 and 328.

<sup>8</sup>Data source: *Data from the Investigation on the Old-Age Support System in China*, the Scientific Research Center of the Elderly in China, 1992.

share of the agricultural natural resources and production capitals is insufficient, while the agricultural population and labors have seen a serious surplus. This severely inhibits improvements in agricultural productivity, the commercial rate of the agricultural products, and the wages of the agricultural labors. In terms of the production methods in rural areas, instead of the original system of the people's communes "large in size and collective in nature," rural areas adopted the household contract responsibility system with remuneration linked to output, playing a key role in liberating and developing agricultural productivity. In terms of the old-age support methods in rural areas, the support from the next generation turns away the market-oriented old-age security. Therefore, for a better understanding on the reform of the old-age security in rural areas, a scientific analysis on the variation of the "dual economy" shall be conducted in order to correctly predict the development and find out the corresponding approach of the reform.

### ***3.2.2 The Old-Age Security in Rural Areas Lagging Behind the "Dual Economy"***

The different old-age security systems in rural and urban areas resulted from the "dual economy." China's "dual economy" has experienced constant change, but the old-age security in rural areas that still mainly relies on the children's support has lagged behind this change. Figures 3.7 and 3.8 show the variation of the structures of the three industries based on GDP shares, employment in the three industries, and urban and rural population since the reform and opening up.<sup>9</sup>

According to Figs. 3.7 and 3.8, China's population urbanization lagged behind the employment structure, and the employment structure lagged behind the industrial structure. Based on the Syrquin M.–H. B. Chenery table of the relation between the structures of the three industries and employment, when the per-capita GDP reaches 1,000 USD, the primary industry should take up 23 % in GDP and 52 % in the employment structure; when the per-capita GDP reaches 2,000 USD, the primary industry should take up 15 % in GDP and 38 % in the employment structure. China's industrial structure in 2000 was close to the level of per-capita GDP of 2,000 USD, when the employment structure equals to the level of per-capita GDP of 1,000 USD. The urban population should account for more than 60 % of the total population. Refer to Tables 3.25 and 3.26.<sup>10</sup>

Syrquin M. and H. B. Chenery's research on the relation between the structures of the three industries, employment of the three industries, and the urban and rural population was mainly based on earlier decades in the latter half of the twentieth

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<sup>9</sup>Data source: *China Statistical Yearbook 2001*, China Statistical Publishing House, P52, 91 and 108.

<sup>10</sup>Refer to Syrquin and Chenery [18]. The value of USD is the constant price of 1980, *Pattern of Development (1950–1970)*, China Financial & Economic Publishing House, 1988.

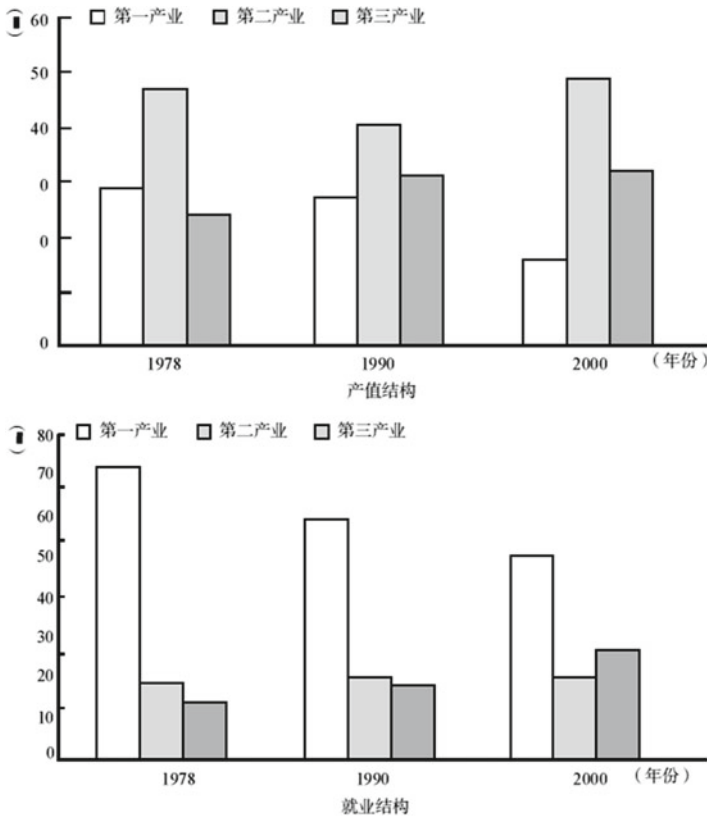


图 1 1978—2000 年三次产业产值结构、就业结构变动

第一产业 Primary industry  
 第二产业 Secondary industry  
 第三产业 Tertiary industry  
 年份 Year  
 产值结构 The structure of the output value  
 第一产业 Primary industry  
 第二产业 Secondary industry  
 第三产业 Tertiary industry  
 年份 Year  
 就业结构 The employment structure

Fig. 3.7 Variation of the industrial structure and employment structure of the three industries from 1978 to 2000

century, which may not adapt to current situation or China's national conditions. However, it is beyond a doubt that China's current urban and rural population structure is lagging behind the structure of the employment in three industries and the employment structure is lagging behind the GDP-based structure of the three industries. This trend has been strengthened since the reform and opening up,

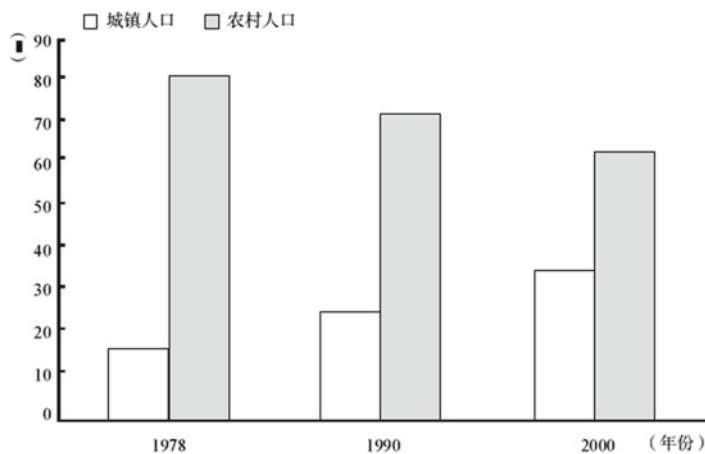


图2 1978—2000年人口城乡结构变动

城镇人口 Urban population

农村人口 Rural population

年份 Year

Fig. 3.8 Variation of the structure of the urban and rural population from 1978 to 2000

Table 3.25 Syrquin M.–H. B. Chenery table of the relations of the variation of structures

Per-capita GDP (USD)	Industrial structure (%)			Employment structure (%)		
	I	II	III	I	II	III
100	48.0	21.0	31.0	81.0	7.0	12.0
300	39.4	28.2	32.4	74.9	9.2	15.9
500	31.7	33.4	35.6	65.1	13.2	21.7
1,000	22.8	39.4	37.8	51.7	19.2	29.1
2,000	15.4	43.4	41.2	38.1	25.6	36.3
4,000	9.7	45.6	44.7	24.2	32.6	43.3

Table 3.26 Syrquin M.–H. B. Chenery table of the relations of the variation of structures

Per-capita GDP (1964, USD)	Proportion of the urban population (%)	Proportion of the manufacturing in GDP (%)
100	22.0	14.9
300	43.9	25.1
500	52.7	29.4
1,000	63.4	34.7
Above 1,000	65.8	37.9

which results from the formation and development of the large floating population that is mainly made up of peasant workers migrating to cities to work or do business. The author estimates that the floating population has reached 100 million. Since the floating population is mainly made up of the working age population, the proportion of the elderly population in rural areas has grown. According to the population census in 2000, the proportion of the elderly population in Shanghai aged above 65 years reached 11.53 %, ranking the first in China. Beijing and Tianjin's proportion of the elderly population was, respectively, 8.36 and 8.33 %, ranking in the 4th and 5th place. This reflects the high proportion of the elderly population in cities, especially big cities. However, the proportion of the elderly population in rural areas is only smaller than the big cities but is bigger than small cities and towns. This situation has increased the difficulty for the reform of the old-age security in rural areas, especially in Jiangsu and Zhejiang. In 2000, the proportion of the elderly population aged above 65 reached 8.84 % in Zhejiang Province and 8.76 % in Jiangsu Province, ranking the 2nd and 3rd place of the country, with the high proportion of the elderly population in rural areas as an important factor. This makes the old-age security in rural areas and its reform more urgent.

### ***3.2.3 Principle for the Reform of the Old-Age Security in Rural Areas According to the Variation of the "Dual Economy"***

Along with the aggravation of population aging in the twenty-first century, the reform of the old-age security has become a global concern. An interesting aspect is that developed and developing countries direct in an exactly opposite way in the reform. Members of the Organization for Economic Cooperation and Development (OECD) are anxious about whether the youths who are submitting a great amount of pension funds cannot obtain corresponding compensation after their retirement and are concerned that this method of old-age security may affect the savings, productive capitals, and the production efficiency. Therefore, they pursue the reform from the single old-age security of formal behaviors of the social group to a diversified system and even fix their hope on the family support in eastern countries. On the contrary, most developing countries worry about the weakening role of children's support and aim to transform the old-age security system currently relying on informal group behaviors to the formal behaviors of the social group. However, the transformation and reform shall be favorable for the solution to the population aging as well as the economic development and social progresses. In order to meet the above requirements, the reform of the old-age security in China, especially in rural areas, shall adapt to the development of the "dual economy," which shall be placed as a basic principle for the reform. Based on the principle, the reform of the old-age security in rural areas can start from the following three aspects:

Firstly, appropriately facilitate population urbanization and realize the rational allocation of rural resources, in order to lay the material foundation for the development of the social security for the old-age in rural areas. As mentioned above, the urban and rural population structure is lagging behind the employment structure of the three industries, while the employment structure is lagging behind the three-industry structure based on the output value. This situation is aggravating the contradictions between the surplus population and labors and the insufficient land, fresh water, forest, and grassland. The fundamental contradiction between the natural and production capitals and the human and social capitals will lead to the slow growth of the agricultural productivity and peasants' incomes. A peasant can never become rich based on a small area of land. It is notable that this situation not only inhibits the development of the agricultural production but also impedes the reform and development of the social security for the aged in rural areas. Therefore, the key is to properly facilitate the population urbanization. Only the significant increase of the per-capita share of the natural and production capitals can bring about the higher commercial rate of the agricultural products, the more market-oriented agriculture, the higher labor productivity of the agriculture, significant growth of peasants' incomes, and a more solid foundation for raising the funds for the old-age security in rural areas. Therefore, the author advocates eliminating the household barrier separating the urban and rural areas that do not adapt to the development of the "dual economy;" properly facilitating the population urbanization; vigorously promoting the modernized, businesslike, and market-oriented agriculture; and creating the economic environment favorable for the reform of the social security for the aged in rural areas.

Secondly, maintain the family support-based old-age security system, in order to guarantee the support for most of the elderly population in rural areas and gain more time to develop the social support-based old-age security system. In view of the disadvantages in the "whole-life" old-age security system of the member states of OECD, as well as the impossibility to build the social old-age security system in rural areas in the short term, the current family support-based old-age security system shall be maintained. Legal, administrative, and propaganda means shall be employed to ensure the elderly population's right to enjoy the family results as other family members do. In this way, more time is provided to cultivate and develop the social security of the formal social behaviors.

Thirdly, adapt to the development trend of the "dual economy," actively develop the market-oriented old-age security in rural areas, and steadily promote the compulsive reform of the social old-age security. Along with the development of the national economy and the transformation from the "dual economy" to modern economy, it is necessary to maintain the family support, especially the children's support as mentioned above. However, the family support will not last for the long term but will finally be transformed to the system of social security based on formal group behaviors, with the family support as the second place. Two main methods can be applied towards this development. Firstly, develop the commercial old-age security with the life insurance as the main form, including the joint-stock old-age insurance with land and capitals as the shares and the insurance that combines the family



planning and old-age support. Secondly, in places where the “dual economy” has been transformed to a certain degree and the living standards of peasants have developed from well off to the prosperous stage, the government, agricultural enterprises, and labors jointly invest on the compulsive social old-age security, similar to the current social old-age security in cities. However, as the foundation, the rural economy and peasants’ incomes shall reach a comparatively developed level; and as a condition, the government shall contribute the financial investment. The peasants have contributed most of their lives to the national construction as the taxpayers, so the government shall put financial investment on the old-age insurance for peasants when the national economy has developed to a certain level. As demonstrated by the development of the social economic security of all nations around the world, the compulsive security can hardly perform the feat without the engagement of the government. The government guidance is the key to the establishment of the social old-age security system.

### **3.3 For Sustainable Development: Comparison Between the “Few Children and Aging” of Population in China and Japan<sup>11</sup>**

The world population confronts an overall trend of “few children and aging” in the twenty-first century, with Japan representing the developed countries and China representing the developing countries. It is necessary to analyze and assess the “few children and aging” of population in China and Japan from the perspective of the sustainable development for the national development as well as the population, economic, and social development in a coordinated, overall, and sustainable manner. Other countries with similar basic national conditions can develop ideas from the following analysis.

#### ***3.3.1 The Trend of “Few Children and Aging” of Population in Japan and China***

For a time, a “baby boom” continued in the world after the end of World War II, when both Japan and China saw a rapid growth of population. Despite the short-term ebb of birth between 1958 and 1961, China’s population had increased from 551.96 to 829.92 million (by 50.4 %) between 1950 and 1970, with an annual growth rate of 2.06 %; and Japan’s population had grown from 72.15 to 98.28 million (by 36.2 %) between 1945 and 1965, with an annual growth rate of 1.56 %. These two periods were the periods of the fastest population growth in the history of the two countries.

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<sup>11</sup>This article was submitted as the paper of the Sino-Japan Academic Symposium of Population, Social and Economic Development, 2005.

Since the 1970s, the population growth has slowed in both countries and the fertility rate has gradually declined. Between 1970 and 1979, China's population had grown from 829.92 to 975.42 million (by 17.5 %), with an annual growth rate of 1.81 %; and Japan's population had grown from 103.72 to 116.16 million (by 12.0 %), with an annual growth rate of 1.27 %. From 1980 to 1989, China's population had grown from 987.05 million to 1.12704 billion (by 14.2 %), with an annual growth rate of 1.48, while Japan's population had grown from 117.06 to 123.21 million (by 5.3 %), with an annual growth rate of 0.57 %. From 1990 to 1999, China's population had grown from 1.14333 to 1.26743 billion (by 10.9 %), with an annual growth rate of 1.15 %, while Japan's population had grown from 123.61 to 126.93 million (by 2.7 %), with an annual growth rate of 0.29 %.<sup>12</sup> The population growth rate is still declining, which is estimated to be 6.8 % in China and 0.2 % in Japan after 2000.

The main factor contributing to the decline of the population growth rate is the constant decline of the birth rate and fertility rate. Since the birth rate is greatly influenced by the variation of the age structure and can hardly be directly utilized in comparison, the total fertility rate (TFR) is applied here. In 1950, China's TFR was 5.81 and Japan's was 5.11, showing no large difference. China still maintained a TFR of 5.81 in 1970, when Japan's TFR had declined to the replacement level of 2.13, showing a great difference. After that, China has made great achievements in employing the family planning policy and controlling the population growth and has lowered the TFR to about 1.80. Japan's TFR had declined to 1.33 by 2001. See the decline of the TFRs of Japan and China in Fig. 3.9.

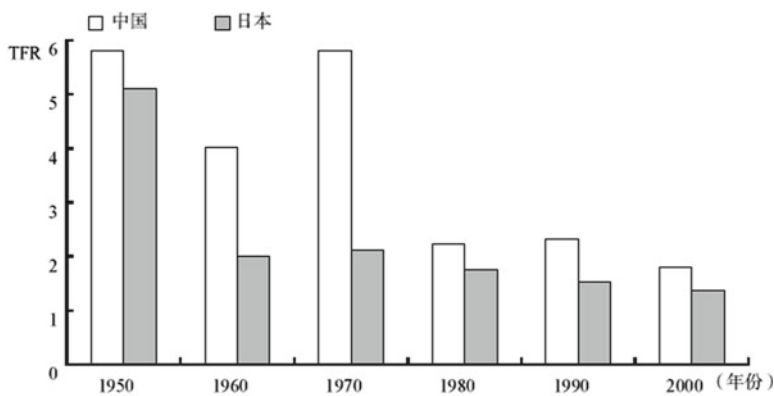


图1 1950年以来中日总和生育率下降比较

中国 China  
日本 Japan  
年份 Year

Fig. 3.9 Comparison between the TFRs of Japan and China since 1950

<sup>12</sup>Data source: The National Statistical Bureau of China, *Data Sheet of China's Population*, China Statistical Publishing House, 1995, P13-14; National Institute of Population and Social Security Research of Japan, *Population Statistics 2003*, P9-10.

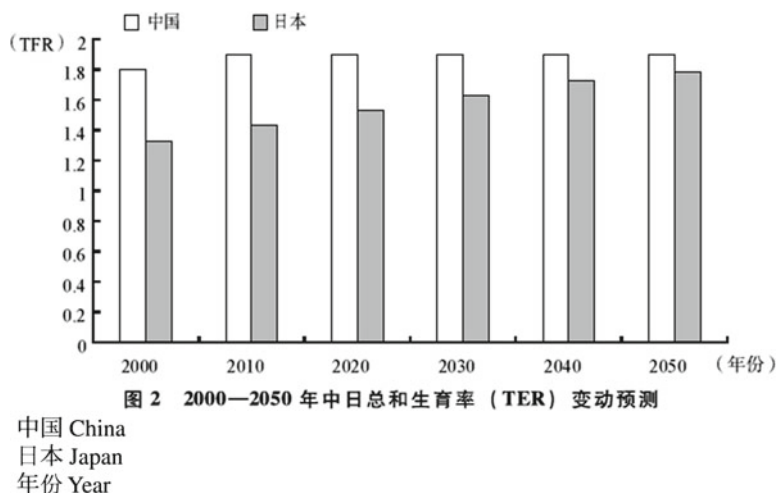


Fig. 3.10 The estimation over the variation of TFR in China and Japan from 2000 to 2050

According to the above information, Japan's TFR declined to the replacement level of 2.13 by 1970, when its proportion of the elderly population above age 65 reached 7.07%, symbolizing the start of the age of “few children and aging,” which becomes more serious in the twenty-first century. China's TFR had reached the replacement level in the mid-1990s and started a slow decline after; and the proportion of the elderly population above age 60 reached 10.1% and the proportion of the elderly above age 65 achieved 7.0% in 2000. China stepped into the age of “few children and aging” at the turn of the century. Though China stepped into this period 30 years after Japan, China has seen a rapid development and reached a high level of “few children and aging” due to the rapid decline of the fertility rate in the previous three decades. However, the situation of “few children and aging” is still deepening, so the gap between Japan and China will still be wide. Japan and China's trend of “few children and aging” attract worldwide attention and will respectively lead the developed and developing countries in this aspect. Figures 3.10 and 3.11 show the medium-level estimation made by the Division of Population, Department of International Economic, and Social Affairs of the United Nations.<sup>13</sup>

The United Nations holds the similar estimations with Japanese and Chinese scholars, because the absolute quantity of the elderly population in the next half a century is a fixed number, which can be calculated by the natural growth of the current population above age 15 deducting the age-specific deaths each year. In addition, only a small section is provided for the decline of the current low fertility rates of the two countries, so the estimations over the birth rate and the number of births do not vary greatly. The difference lies in that the United Nations predicts a more

<sup>13</sup>Data source: United Nations [7], P172, P280.

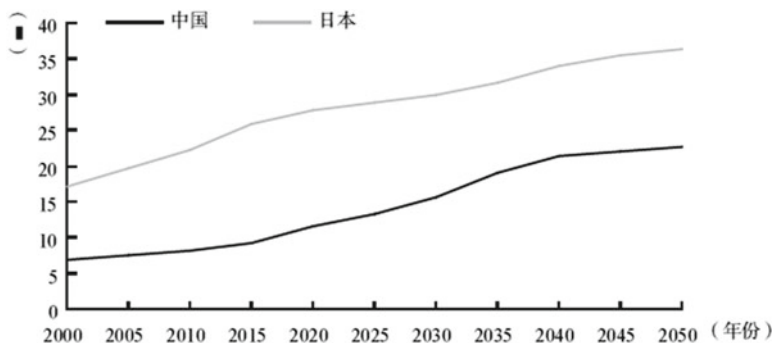


图3 2000—2050年中日65岁以上老年人口比例变动预测

中国 China  
日本 Japan  
年份 Year

Fig. 3.11 Estimation of the variation of the proportion of the elderly population above age 65 in Japan and China from 2000 to 2050

serious situation of the “few children and aging” than scholars of the two countries. For example, according to the medium-level estimation of the National Institute of Population and Social Security Research of Japan, the proportion of the elderly population above age 65 was 17.4 % in 2000, 0.2 % higher than the United Nations; the aging speed was 0.7 % slower than the United Nations; and other indicators for aging, including the median age and the ratio of the elderly and children, were slightly little lower than the United Nations.<sup>14</sup>

### 3.3.2 Problem of the “Few Children and Aging” Situation

The trend of “few children and aging” in Japan and China has unveiled three main problems. The first is the labor supplies, and whether a labor shortage will emerge. The second is the support of the elderly and whether the social burden will be too heavy. The third is the development vitality, and whether the problem of technical stagnation will arise. Other problems in culture, tradition, marriage, and families are linked with the above three basic problems.

<sup>14</sup>National Institute of Population and Social Security Research of Japan, *Estimated Population of Japan in the Future*, 2002, P12.

### 3.3.2.1 Labor Supply

The decline of the fertility rate and reduction of the births will directly result in the change of the working age population, and the constant decline may finally lead to the reduction of the working age population and the short supply of labors. According to the estimation, China’s working age population between ages 15 and 64 will continue increasing until 2015, which will grow from 869.64 million in 2000 to 934.20 million in 2005, 979.58 million in 2010, and then 1.00548 billion in 2015. However, the population will start a slow decline after 2015 to 1.00359 billion in 2020, 994.69 million in 2030, 927.07 million in 2040, and 891.85 million in 2050. It can be seen that China’s working age population aged between 15 and 64 will maintain above the current level in the next half a century.

Fundamentally, the crux of China’s population problem lies in the surplus population and labors. In the process of “few children and aging” in the first half of the twenty-first century, China’s working age population will keep above the current level, so the labor shortage will not arise in China. However, Japan meets a different situation. Its working age population aged between 15 and 64 reached 88 million in the mid-1990s and then declined to 86.22 million by 2000, 84.6 million by 2005, 81.8 million by 2010 and then projected to decline to 74.82 million by 2020, 70.47 million by 2030, 61.69 million by 2040, and 55.81 million by 2050.<sup>15</sup> The working age population in Japan will decline by 30.74 million in the 50 years between 2000 and 2050, which will inevitably incur a labor shortage in some sectors and industries.

### 3.3.2.2 Social Burden

The social burden in demography refers to the dependency ratio, i.e., the ratio of the total number of the elderly population (above age 60 or 65) and the youngster population (between ages 0 and 14) that needs to be supported by the working age population aged between 15 and 59 or between 15 and 64. This reflects the number of the elderly and youngster to be borne by each working age labor on average. In the process of the “few children and aging,” the “few children” reduces the proportion of the youngster population and therefore can release the social burden; however, the population “aging” increases the proportion of the elderly and therefore increases the dependency ratio and the social burden. The decline of the proportion of the youngster population and the growth of the proportion of the elderly population decide the increase or decrease of the dependency ratio, which varies in different historical periods. Based on the above estimation, Fig. 3.12 shows the variation of the dependency ratio of Japan and China in the next half-century.

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<sup>15</sup>Data source: United Nations [7], P172, P280.

龄人口负担的少年和老年人口负担系数的变动，如图 4 所示。

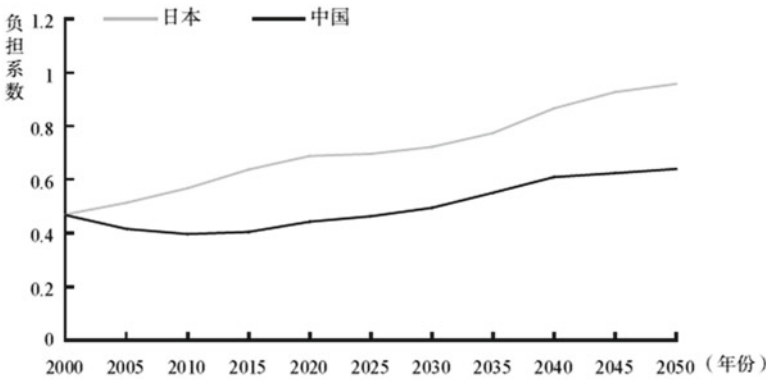


图 4 2000—2050 年中日劳动年龄人口负担系数变动预测

日本 Japan  
 中国 China  
 负担系数 Dependency ratio  
 年份 Year

Fig. 3.12 The estimation on the variation of the dependency ratio in Japan and China from 2000 to 2050

According to Fig. 3.12, China and Japan would share the same dependency ratio around 2000. China's dependency ratio has declined for more than 20 years since the 1980s and reached 0.466 in 2000. However, Japan has seen a constant growth in the dependency ratio since 1970s and reached 0.468 in 2000, which was close to China's situation. After the meeting point, China's dependency ratio continues to decline and drops to 0.414 in 2005, reaches the minimum value of 0.395 in 2010, and starts a slow growth after 2010. It will maintain below the Japan's dependency ratio. The ratio will climb from 0.403 in 2015 to 0.441 in 2020, 0.608 in 2040, and the peak of 0.639 in 2050, which equals to the level of Japan in 2015. Japan faces the pressure of the increasing dependency ratio. It will grow to 0.567 in 2010, 0.688 in 2020, 0.866 in 2040, and the peak of 0.957 in 2050. Japan's dependency ratio will keep 0.2–0.3 higher than China from 2015 to 2050, demonstrating that Japan is bearing a heavier social burden than China.

### 3.3.2.3 Development Vitality

The development vitality refers to the innovative capabilities in economic, scientific, and social development, including the innovative capabilities in economic growth, scientific research, technical progress, and social harmony. The proportion of the elderly population and the dependency ratio will constantly grow in Japan and China in the process of "few children and aging" in the first half of the

twenty-first century. On one hand, it will increase the wages of labors due to the reduction of the quantity of labors and therefore increase the labor cost; on the other hand, the larger proportion of the elderly population will incur more consumptions, especially for consumptions purely for the living of the elderly, which will affect the savings and investment from production and consumption and adversely affect the rapid economic growth. However, based on specific analysis, the adjustment of the industrial structure that meets the demands of the elderly, as well as the increase of the consumption demands of the aged, will slowly spur economic growth. There are two different opinions on the scientific research and technical progress. The first opinion believes that the “few children” is favorable for families and society’s intellectual investment and the accumulation of human capitals and, at the same time, the development of human resources of the elderly population can achieve considerable output based on a low cost and facilitate scientific and technical development. However, the other opinion believes that the larger proportion of the elderly proportion, especially the larger proportion of the very elderly, will adversely affect the social ability to accept advanced sciences and technologies or upgrade the technologies and therefore slow the scientific and technical progress. The author considers both opinions as partly rational. However, due to the common law that people’s intellect will decline along with the increase of age, the adverse effect of the “few children and aging” on scientific and technical progress plays the main role. Eastern and western scholars differ even more greatly on the influence of the “few children and aging” on the harmonious development of society and hold very different ideas on traditions, ethics, marriages and families, value orientation and judgments, and the method to join society. These differences play a dual role in science and technologies, which, in conclusion, is favorable for social stability but is adverse to the social vitality.

### ***3.3.3 Decision Making Based on the Sustainable Development***

The above has conducted the analysis on the variation and development trend of the “few children and aging” in the future and the main problems incurred from this development. However, the focus shall be how to respond to the future situation and potential problems and how to make strategic decisions. In China, the whole academic circle regards the surplus population as the key problem, places the control of the population control as the main goal, and advocates adhering to the basic national policy of the family planning to control the population quantity and improve the quality. Though the fertility rate has declined below the replacement level since the mid-1990s, China’s population policy still attaches great importance to the population control in the twenty-first century in order to comprehensively solve the population problems, followed by the improvement of the population quality and the adjustment of the population structure. Even so, the perspective and the concept of development shall be chosen to view and solve these problems, i.e., to observe and solve the population problem based on the traditional concept of development or the

**Table 3.27** Japanese government's opinions and policies on population growth

Year	1976	1986	1996	2001
Opinions on population growth	Good (support)	Good (support)	Good (support)	Good (support)
Policies on population growth	No interference	No interference	No interference	No interference
Scale of the working age population	No interference	No interference	No interference	Greatly involved
Age structure of the population	No interference	No interference	No interference	Greatly involved
Opinions on the birth level	Good (support)	Good (support)	Too low	Too low
Birth policies	No interference	No interference	No interference	No interference
Contraception	Direct support	Direct support	Direct support	Indirect support

concept of the development in a coordinated, comprehensive, and sustainable manner. Japan also has different opinions. However, owing to the increasing concerns on the “few children and aging” in recent years, support has grown to improve the fertility rate. The Division of Population of the Department of International Economic and Social Affairs of the United Nations has summarized the population policies of the Japanese government since 1976, which is listed in Table 3.27.<sup>16</sup>

According to Table 3.27, the Japanese government has held an attitude of “no interference” on the population variation since 1976 but changed its attitude slightly in the twenty-first century. For contraception, it transformed its attitude from “direct support” to “indirect support”; transformed its attitude from “no interference” to “greatly involved” in terms of the variation of the age structure and scale of the working age population; and transformed its attitude from “good (support)” to the “too low” since 1996, in terms of the current birth level. Actually, ever since the 1990s, the Japanese government has emphasized on the old-age support and pursued the effective improvement of the fertility rate at the same time, including promoting the health care for women of childbearing age, sending children to a children care center for better care, building healthy social environment to assist families in children education, and improving people’s understanding over the problem of the “few children and aging” through various publicity measures such as the Internet. In 2003, the *Act on the Countermeasures against the Society of Few Children* was approved to improve the preferential treatment on mothers and families and provide better service for them through legal measures, in order to stimulate the fertility rate and release the pressure from the “few children and aging.” However, the Japanese government has not attained great results, since it has not provided the effective countermeasure against the main cause of the “few children and aging”: the late or no marriage of young men and young women.

The most notable important problem, as well as the theme of this article, is how large the Japan’s population size should be and whether the current “few children

<sup>16</sup>United Nations [16], P210.



**Table 3.28** Comparison between the population and environment status of the world, China, and Japan

	Population density (people/km <sup>2</sup> )	Per-capita water resources (m <sup>3</sup> )	Per-capita area of arable land (ha)	Per-capita energy consumption (kg)	Per-capita CO <sub>2</sub> emission (kg)
	2001	2000	1996–1998	1997	1997
World	45	7,113	0.26	1,671	42
China	134	2,201	0.11	883	28
Japan	337	3,393	0.04	4,085	92

and aging” problem is terrible or necessary. To be more profound, the problem refers to the position to view and solve the population problems in China, Japan, and other countries in the twenty-first century. According to scientists’ researches, the earth has a history of 4.7 billion years, while the living creatures on the earth have a history of only 2.3 billion years. The first human being may have appeared more than four million years ago. Since the industrial revolution in mid-eighteenth century, the world population has seen a rapid growth from 1 billion in 1830 to 6 billion in 1999 and 6.3 billion presently. The population problem has become the focus of a series of international meetings. As presented in the meetings on the population, environment, and development, owing to the expanding population, exhaustion of resources, and environmental deterioration, more and more people come to realize the world has to follow the road of sustainable development in order to inhibit the population growth and protect resources and the environment. From the perspective of the sustainable development, the author thinks that China and Japan’s populations have approached or exceeded the capacity of resources and environment and should try to strive for the zero or negative growth of population. See details in Table 3.28.<sup>17</sup>

As shown in Table 3.28, the population density in China and Japan has significantly exceeded the world level, with China 2.98 times and Japan 7.49 times that of the world level. The per-capita energy consumption of China has not reached the world average level, while Japan’s consumption is 2.44 times of the world level; China still falls behind the per-capita CO<sub>2</sub> emission, while Japan is 2.19 times of the world level; China only takes up 0.309 of the world average level, while Japan only takes up 0.477 of the per-capita water resources, which is the main negative indicator; and for the per-capita arable land area, China only takes up 0.423 of the world level, while Japan takes up only 0.154. Currently, Japan enjoys a per-capita GDP that is four times that of the world average level, but China still has a long way to go. However, the above situation clearly demonstrates that Japan sees a more serious contradiction between the population and environmental development than China. As the second largest economic power, Japan is overshadowed by European and American developed countries in many aspects due to overpopulation and encounters serious problems in accommodation, traffic, green public land, air quality,

<sup>17</sup>Data source: United Nations [19].

and space for activities, which can be summarized as the incoordination between the population and the resources and environment. Therefore, from the perspective of sustainable development, a certain degree of the “few children and aging” is necessary in both China and Japan in seeking the sustainable development of the population, resources, and environment, particularly in Japan.

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# Chapter 4

## Population Flow and Population Urbanization

### 4.1 Reform and Opening Up Revitalized Population Urbanization<sup>1</sup>

China's social conditions have been substantially changing since the implementation of the economic reform that aimed to invigorate the domestic economy. As the product of social, economic, political, and cultural development, population urbanization is closely related to the reform, as the depth, range, and process of the reform greatly restricted the development of the population urbanization.

#### 4.1.1 Acceleration of Reform and Population Urbanization

The population urbanization, as a common trend of the world population development, appears and develops in China without exception. Figure 4.1 shows the comparison of China, developing countries, and the world in the development of population urbanization since the foundation of the People's Republic of China in 1949.

As shown in Fig. 4.1, China not only shares similarities but also shows differences, with the world and developing countries in population urbanization. It is worthy to note that the world and developing countries have seen a steady and gradual rise in the proportion of urban population, while China has evidently presented three development stages. In the 1950s, the proportion of the urban population had grown sharply from 11.2 % in 1950 to 19.7 % in 1960, having grown by 8.5 % in 10 years; in the 1960s and 1970s, the proportion floated between 16.8 and 19.7 % and did not return to the level of 1960 until 1979, when the proportion had reached 19.0 %; and after the 1980s, the proportion has risen substantially from 10.4 % lower than developing countries in 1980 to 4.9 % higher, and China's population urbanization has stepped into a new stage.

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<sup>1</sup>This article was originally published on the Chinese Journal of Population Sciences, 3rd issue, 1988.

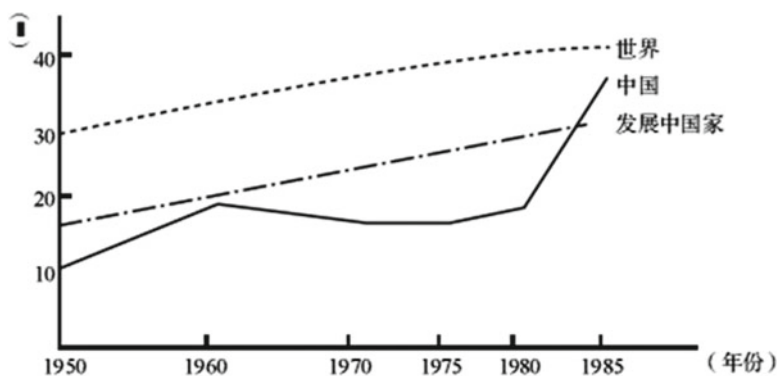


图 1 中国、发展中国家、世界城镇人口比例变动比较

世界 World; 中国 China; 发展中国家 Developing countries

Data source: *China Statistical Yearbook 1986*, China Statistical Publishing House, P91. United Nations, *The Prospects of the World Urbanization Revised of 1984-1985*, p8, New York, 1987

**Fig. 4.1** Comparison of the proportions of the urban population in China, developing countries, and the world

Domestic and foreign scientists have different opinions on the significant growth of the proportion of China's urban population in recent years. Some believe that it has truly reflected China's current status based on the rapid development of the population urbanization after the economic reform, but some consider the proportion is too exaggerated compared to the true situation in China. The main reason contributing to the latter opinion is that the urban population has suddenly expanded owing to the large number of newly established towns after the adjustment on the criteria for the establishment of towns in 1984. Therefore, they attribute the growth of the proportion of the urban population in recent years to administrative measures, which contradicts the practical situation.

The author believes that the latter opinion needs further discussion. Generally, the urban population refers to the total population in the areas under the jurisdiction of cities and towns. The provinces, autonomous regions, and municipalities directly under the central government enjoy the right to approve the establishment of towns. However, the criterion has changed. Before 1963, the criterion was a permanent population above 3,000 and the proportion of nonagricultural population above 70%. In 1964, it changed to a permanent population above 3,000 and the proportion of nonagricultural population above 70%, or a permanent population between 2,500 and 3,000 and the proportion of nonagricultural population above 85%. In 1984, according to the criterion, towns could be established in the place of the seat of the government at the county level, or the seat of a village government where the total population is under 20,000, but the nonagricultural population exceeds 2,000; established in the seat of a village government where the total population exceeds 20,000 and the nonagricultural population accounts for above 10%; or

established in minority districts, remote places, and mountain areas, small industrial and mining areas, small harbors, places of interest, and border ports of a nonagricultural population fewer than 2,000, if it is really necessary. Based on the above criteria, the number of towns in the country had risen from 2,968 by the end of 1983 to 6,211 (towns under the jurisdiction of counties) by the end of 1984, with a growth of 3,243 and a growth rate of 109 %.<sup>2</sup> In view of this, the proportion of the urban population seems exaggerated. However, concrete analysis shall be conducted on concrete conditions in order to achieve a conclusion that meets the facts.

Firstly, based on the new standards for the establishment of towns in 1984, the change on the traditional criterion of the amount of nonagricultural population was not very large, except the special circumstances of minority districts, remote places, and mountain areas, small industrial and mining areas, small harbors, places of interest, and border ports. The actual criterion on the nonagricultural population was above 1,000 before 1964, which was revised to above 2,100 in 1964 and 2,000 in 1984. The criterion in 1984 was higher than 1963 and lower than 1964. The problem lies in the more flexible restriction on the amount of the nonagricultural population in the establishment of towns and the larger proportion of the agricultural population in the population of towns. However, by the end of 1984, 52,282,521 out of the total town population of 134,474,121 were still nonagricultural populations. The average population for each town was 21,651, including 8,414 nonagricultural populations.<sup>3</sup> Truthfully, it is common to establish towns in places of such a population and concentration of the nonagricultural population. Many towns should have been established earlier, but were restricted by many previous regulations. They were finally established in 1984. The World Bank proposed in its report after the economic survey on China in 1984 that “the places of the offices of people’s communities are listed as villages, though they have thousands of people and many of them are engaged in non-agricultural occupations; but these places of such a large population size are listed as the areas of urban population in most countries.” Regarding the reason why China did not list the people in these areas with the urban population, the report attributed it to “China’s special economic structure.”<sup>4</sup> The report also introduced the definition for urban areas in the United States, which referred to the area with a population size over 2,500 and a population density above 400 people per square kilometers (excluding farmland, railway station yard, large-scale park, large factory, airport, cemetery, sea and lake, etc.). Based on this definition, not only the population in the places of the offices of people’s communities but also the population living in suburbs of cities should be incorporated in the urban population. In this way, China’s proportion of the urban population could reach as high as 34 %.<sup>5</sup> The author believes

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<sup>2</sup>Data source: *China Social Statistics 1987*, China Statistical Publishing House, 1987, P17.

<sup>3</sup>Data source: *China Social Statistics 1987*, China Statistical Publishing House, 1987, P8, P18.

<sup>4</sup>Data source: *Urbanization: International Experiences and Prospects in China*, background information for the World Bank’s economic survey on China, China Meteorological Press, 1984.

<sup>5</sup>Data source: *Urbanization: International Experiences and Prospects in China*, background information for the World Bank’s economic survey on China, China Meteorological Press, 1984.

that the criteria for the establishment of towns in 1984 were proper in comparison to the previous criteria in China or the criteria in foreign countries.

Secondly, the reform and opening up has greatly facilitated the population urbanization and resulted in the rapid growth of the urban population and the proportion of the nonagricultural population in urban areas. The reform of rural economic system in the late 1970s, with the rural household contract responsibility system with remuneration linked to output as the main content, had swept across the country and began a new chapter in China's agricultural development. Instead of only concentrating on crop farming, the masses of peasants have advanced to forestry, animal husbandry, sideline production, and fishery, and many of them have become experts in their industries. Township enterprises have experienced rapid development and created new agricultural modes in South Jiangsu Province and Wenzhou by combining with agricultural development. A large number of surplus agricultural labors have been released from the land to various regular industrial and commercial activities. All these situations have revealed the profound reform in China's agricultural economy, the transformation from traditional monoculture to diversified agriculture, from self-insufficient or semi-self-insufficient economy to commodity economy, and from traditional agriculture to modern agriculture. Along with these transformations, a large number of peasants come to the market and to urban areas, particularly the small towns, becoming the floating populations that leave the farmland, but not their hometowns, or becoming the urban populations that leave their farmland and hometowns. Accompanying the reform of the urban economic system and the further invigoration and opening, the urban areas are in urgent need of expanding economic exchanges with rural areas in order to absorb the surplus agricultural labors to industry and commerce in urban areas. Therefore, especially in the small towns, the surplus agricultural labors and their dependent populations are transferring to urban areas in a large scale, large quantity, and rapid speed that have never been seen before. This is the basic reason for the rapid growth of urban populations in recent years.

Why has the reform and opening up significantly facilitated the population urbanization? Fundamentally, the reform and opening up has vigorously facilitated the development of the agricultural and industrial production, as well as the whole national economy, which can be seen from the process of the population urbanization and the growth of national incomes in the recent 35 years, as shown in Fig. 4.2.

According to Fig. 4.2, China's population urbanization has developed synchronously with the growth of the general national income and the national incomes created by the industry and agriculture. In the 1950s when the national incomes and the national incomes created by the industry and agriculture had grown rapidly, the proportion of the urban population had also quickly increased. However, the national incomes created by agriculture in 1959 were 6.4 billion yuan lower than in 1958, and the incomes in 1960 were 4.4 billion lower than in 1959, which conflicted against the growth of the proportion of the urban population, leading to the decline of the proportion of the urban population in the early 1960s. The "Cultural Revolution" had inhibited economic development, lowered the growth of the national incomes, and therefore stopped population urbanization. The national economy has seen rapid development since reform and opening up, as

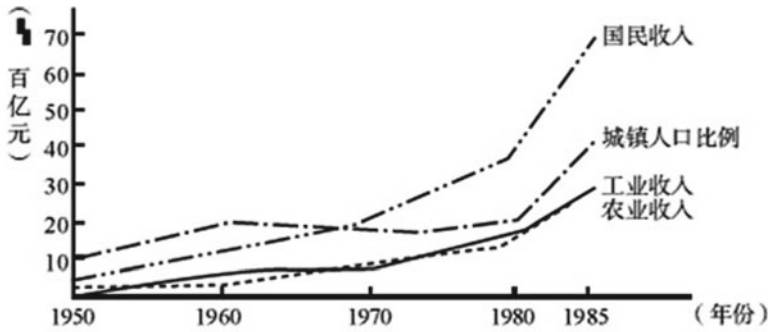


图 2 1950—1985 年中国城镇人口比例和国民收入增长比较

资料来源：《中国统计年鉴 1986》，中国统计出版社 1986 年版。

国民收入 National incomes; 城镇人口比例 Proportion of urban population

工业收入 Industrial incomes; 农业收入 Agricultural incomes; 年份 Year

Fig. 4.2 Comparison of the growth of the proportion of urban population and the national incomes in China between 1950 and 1985

the national incomes have grown by 1.27 times between 1978 and 1985, and the national incomes created by agriculture have grown 1.66 times and the national incomes created by industry have doubled. Therefore, the urban population has grown by 1.22 times in this period, with the proportion of urban population increasing from 17.9 to 36.6 %. It shall be noted that, as decided by China’s specific basic conditions, the urban population shall rely on the development of agricultural development and the increase of the agricultural labor productivity, instead of expropriating the peasants. It is an outstanding characteristic of China that economic development is the foundation for population urbanization.

#### 4.1.2 Reform and the Changes in the Structure of Cities in Different Population Sizes

The reform of the economic system in China not only has facilitated the population urbanization but has also developed agriculture, industry, and commerce based on the coordinated development and mutual promotion of rural and urban economies. Therefore, the reform shows very marked differences in the influences on cities and towns in different scales and different economic status. Generally, the reform of the economic system has substantially facilitated the growth of urban population, which is more evident in medium and small cities than in large cities. It inevitably incurred the changes in the structures between the towns and cities in different population scales and between large, medium, and small cities.

The first is the change in the population structure between cities and towns. For a long time, China's population urbanization had suffered a low-level and underdeveloped economy in small towns that could not fully play their roles as the link between rural and urban areas. This situation has profoundly changed along with the deepening reform of the economic system. Compared to 1981, the town population had sharply increased from 60.31 million to 170.37 million in 1984 (by 1.8 times), raising the proportion of the town population in urban population from 31.2 to 40.7 %, while the city population declined from 68.8 to 59.3 %. The proportion of the town population further increased to 44.6 % in 1985, while the city population dropped by 55.4 %. Nearly every country around the world has experienced the boom of small towns in their process of population urbanization. However, small towns in China had not developed rapidly before the 1980s, and some towns had even seen a decline in industry and commerce. The reform of the economic system in recent years has begun the prosperity of urban industry and commerce, ended the stagnation of the town population, and led to the strategic change in the ratio between the town and city population.

The second is the change in the population structure between cities of different scales. Compared to 1981, the number of cities with a population size smaller than 100,000 had reduced from 15 to 11, with the population size decreasing from 1.092 million to 530,000 and the proportion in the city population declining from 0.8 to 0.25 %. The number of cities with a population size between 100,000 and 300,000 had risen from 86 to 93, with the population size increasing from 16.549 to 19.24 million and their proportion in the city population declining from 11.9 to 9.10 % due to the growth of the total number of the city population. The number of cities with a population size between 300,000 and 500,000 had risen from 50 to 78, with the population size increasing from 19.55 to 30.4 million and their proportion in the city population raised from 14.1 to 14.25 %. The number of cities with a population size between 500,000 and 1 million had risen from 41 to 85, with the population size increasing from 29.35 to 60.61 million and their proportion in the city population raised from 21.1 to 28.61 %. The number of cities with a population size between 1 and 2 million had risen from 24 to 44, with the population size increasing from 29.56 to 54.84 million and their proportion in the city population raised from 21.3 to 25.88 %. The number of cities with a population size over 2 million had maintained at 13, with the population size increasing from 42.7 to 46.2 million and their proportion in the city population declining from 30.8 to 21.8 % due to the growth of the total urban population.<sup>6</sup> It can be seen that the growth of the cities with a population between 500,000 and 1 million between 1981 and 1985 had been the most rapid, with the number of cities growing by 1.1 times, the population size growing by 1.1 times, and the proportion of the urban population growing by 7.51 %; followed by the growth of cities with a population size between 1 and 2 million, with the number of cities growing by 83.3 %, the population size growing by 85.5 %, and the

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<sup>6</sup>Data source: China Statistical Yearbook 1986, China Statistical Publishing House, P94.



proportion growing by 4.58 %; the third place was the growth of cities with a population size between 300,000 and 500,000, with the number of cities growing by 8.1 %, the population size growing by 16.6 %, and the proportion growing by 0.25 %. The proportions of the three other cities had all declined. The cities with a population size above 2 million have seen the biggest decrease in the population proportion (by 8.99 %), followed by the cities with a population size between 100,000 and 300,000 that saw a decline by 2.8 %, and then the cities with a population size lower than 100,000 that had declined by 0.55 %.

It shall be noted that this is the change in the structure of cities in different population sizes, including the agricultural population in suburbs. If based on the change of the nonagricultural population in urban areas, the proportion of the populations in the small and medium cities with a population size below 500,000 will indeed grow, with the cities of the population size between 100,000 and 300,000 growing by 2.34 %, the cities with the population size between 300,000 and 500,000 growing by 1.54 %, and the cities with the population size below 100,000 growing by 0.84 %. The proportion of the populations in the large cities with a population size over 500,000 will decline, with the cities of a population size between 500,000 and 1 million decreasing by 3.16 %, the cities of the population above 2 million decreasing by 1.52 %, and the cities with a population between 1 and 2 million decreasing by 0.04 %.

Why do the variations of the structures of cities in different population sizes show marked differences, or even the opposite, from the perspectives of the population and the nonagricultural population? The main reason is the slow development of the agricultural population in suburbs with a population size below 300,000, leading to the rise of the proportion of the nonagricultural population and the decline of the proportion of the city population. The cities with the population size between 300,000 and 500,000 have seen a significant growth in both the city population and the nonagricultural population, resulting in the increase of the proportions of both the city population and the nonagricultural population. In cities of a population size between 500,000 and 1 million and between 1 and 2 million, the sharp increase of the agricultural population in suburbs causes the significant increase of the proportion of the city population and the decline of the proportion of the nonagricultural population. However, in cities with a population above two million, the growths of the agricultural and nonagricultural population are both slow, so their proportions of the city population and nonagricultural population have both declined, with the proportion in the total city population declining more rapidly. Based on the comprehensive analysis, the growth of the nonagricultural population in small and medium cities of a population size below 500,000 is significant; the agricultural population in large cities with the population size between 500,000 and 2 million has significantly grown; and the growth of both agricultural and nonagricultural population in the super large cities with a population size above 2 million is slower than large, medium, and small cities. This reflects that China has changed its original situation of rapid development in large cities, but slow development in medium and small cities. In particular, the

rapid growth of the town population has fundamentally changed the population structure in large, medium, and small cities and towns. The structure of the urban population is developing in a more rational manner.

### ***4.1.3 Reform and the Promotion of the Flexibility of the Mode of Population Urbanization***

For a long time, China has followed the principle of “controlling the scale of large cities, properly developing medium cities, and actively developing small cities” in the population urbanization. This principle had been clarified in the 6th Five-Year Plan for National Economic and Social Development of China approved in the Fifth National People’s Congress in 1982 and was again emphasized in the 7th Five-Year Plan, which additionally pointed out “practically preventing the over-expansion of the population scale in large cities and giving priority to the development of medium and small cities and towns in a planned way.” The 7th Five-Year Plan also estimated the number of cities as 400 and number of towns as more than 10,000 in 1990.<sup>7</sup> The author believes that China has adopted an accurate principle for the population urbanization fully based on the basic conditions of China and the experiences of the urbanization in foreign countries.

Firstly, as a result of the economic, political, and cultural development and the fundamental development of social productivity, more and more people are concentrated in cities in the process of the population urbanization. Social productivity decides the level of population urbanization, as well as the structure of cities in different population sizes. In a country of more than one billion population, the speed, scale, and structure of the development of Chinese cities mainly rely on its own economic strength, especially the agricultural development and the quantity of surplus agricultural products. As mentioned above, the speed of population urbanization is generally more rapid because of the national economy’s more rapid growth, especially the agriculture and vice versa. For instance, despite the three breakthroughs achieved in the number of employees, total amount of wages, and commercial food supplied by the government to urban residents, the urban population still declined due to the decline of the agricultural production in the early 1960s. However, cities of different population scales show different demands on investment and dependency on agriculture. Generally, cities of a smaller scale need less investment for the increase of each urban population; and cities of a larger scale need more investment. Cities of a smaller scale have closer relations with villages; and cities of a larger scale have a loose relationship with villages and therefore need some intermediate links. Due to the low

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<sup>7</sup>Refer to *Files in the 5th Meeting of the Fifth National People’s Congress of the People’s Republic of China*, People’s Press, 1983; *Files in the 4th Meeting of the Sixth National People’s Congress of the People’s Republic of China*, People’s Press, 1986.

productivity, especially the low development level of the agricultural production, the principle of the population urbanization that gives priority to the development of medium and small cities and towns can achieve quicker results and transfer the surplus agricultural labors to the urban industry and commerce through less investment.

Secondly, the rapid development of the population urbanization based on industrialization incurs an obvious disadvantage: the prosperity of cities and depression of villages. The modernized industry and backward agriculture aggravate the contradiction between rural and urban areas. The principle of controlling large cities, rationally developing medium cities, and actively developing small cities adopted in China aims to change the backwardness of agriculture, implement the general policy of the development of national economy based on agriculture and led by industry, emphasize the integration of rural and urban economies, realize the coordinated development between rural and urban areas, and gradually bridge the gap between rural and urban areas. This development road, which takes both urban and rural development into consideration, is in accordance to China's essence of the social system and the demands by the proportional development of agriculture and industry as planned.

Thirdly, some developed countries have completed their primary stage of the population transfer from villages to cities in their process of population urbanization and stepped into the senior stage or village urbanization. These populations in the middle of very large cities are constantly moving to the outside. In this stage, though they have enjoyed the superior conditions of large cities, they have also suffered a lack of housing, heavy traffic, and the serious pollution of water, air, and noise. Of course, these public hazards incurred by the development of large cities can be solved, but need a large investment and long-term construction. For China, a country just beginning construction and with an inability to invest a large amount of capitals on urban construction, it is practical and comparatively favorable to adopt the policy of controlling the scale of large cities and focusing on the development of small cities and towns, in order to avoid and release the problems incurred by the overexpansion of large cities.

However, it is impossible to give a mechanical explanation on the principle of controlling large cities, properly developing medium cities, and actively developing small cities. The current reform of the economic system has greatly influenced this principle and increased the flexibility of the mode of the population urbanization, which is reflected in the development of all large, medium, and small cities, especially the development of small and large cities.

Initially, cities are the products of commodity production and exchange in the economic sense. Except for a few political and cultural cities, this is still the main and basic function of the modern cities. The reform of urban and rural economic systems in China further invigorates and opens the economy and adopts the commodity economy as planned, which significantly raises the commercialization of the products and rapidly expands the exchanges and markets. Under these circumstances, in small cities that should be actively developed according to the principle,

some regulations that cannot adapt to the development of objective situations should be further released. In fact, after the experiments in many provinces, autonomous regions, and municipalities directly under the central government after 1984, the restrictions on peasants moving into towns have been relaxed. The peasants that seek jobs, do business, or are involved in the service sector are allowed to settle down in towns if they can satisfy their own needs for food. Since the reform of the contract responsibility system has been implemented, and the grains surplus from the state purchase can be traded in markets, it is possible for peasants to satisfy their own needs for food. More and more urban residents are becoming independent from the commodity food supplied by the government. This is a flexible policy as a result of the reform and opening up, which greatly facilitates the population urbanization.

Among the large floating population generated based on the commodity production and market expansion, a large part of them flow to small cities and towns, while others transfer to medium or large cities, leading to new problems in population control in large cities. According to statistics, the floating population has increased very rapidly since the reform of the economic system. The total volume of passengers transported in China has grown from 2.53993 billion in 1978 to 5.67092 billion in 1985 (by 1.2 times), with the railway growing by 37.6 %, road traffic growing by 1.9 times, waterway growing by 17.2 %, and civil aviation growing by 2.2 times.<sup>8</sup> According to investigations and statistics, the average daily floating population in Beijing and Shanghai is about 1 million, and as many as 1.5 million people have left their farmland and searched for jobs and businesses only in Zhejiang Province in 1985, including more than 300,000 in Wenzhou. Peasants moving to cities have accounted for the largest proportion in the floating population flowing to cities. According to the survey on Beijing in April 1985, peasants only took up a small proportion in the floating populations that live in hotels and guesthouses, but they took up the largest part, as high as 31.6 %, in the floating populations that live in groups of enterprises of the collective ownership and occupied nearly half in the floating population that live as households. In more than 250 farmer's markets in Beijing, peasants from other provinces have accounted for 54.2 %; among the 2,500 building groups in the eight districts, 1,800 come from other provinces, taking up 75 %; and 88.9 % of the total economically active population come from villages, and most of them were originally engaged in farming, forestry, animal husbandry, and fishery.<sup>9</sup> These people may remain in cities for couple of days or weeks or remain for years as the urban population in the cities. This is a great shock to the principle of urbanization of "controlling the population scale of large cities." The large number of peasants moving to large cities will necessarily bring about many problems in urban supply, accommodation, traffic, and public security. Therefore, can measures be adopted to block or restrict peasants from moving into cities like before? The author thinks not, because the peasants moving into cities are necessary for the

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<sup>8</sup>Data source: *China Statistical Yearbook 1986*, P381.

<sup>9</sup>Data source: Wang Shuxin, & Feng Litian [20].

transfer of the surplus agricultural labor and the development of large cities in reform and opening up. Large, medium, and small cities have a different status and role in the national economy, which shall be paid special attention to in reform and opening up. Small cities, as the natural link between the urban industry and rural economy, connect the economic and cultural exchanges between rural and urban areas, while large cities lead the development of agriculture and whole economic development in the economic area; play the role as the economic, trade, financial, scientific, and technical, education, cultural, information, and traffic center of the area; and are featured with greater attraction and coordination ability. Along with the deepening reform of rural and urban economic systems, the functions of large enterprises will be further revealed and will attract peasants and various kinds of personnel to participate in the economic activities in cities. This is a profound reform in the development of large cities, which shall be actively supported. However, it does not accord to China's basic conditions in the current stage if China indulges the large number of peasants freely moving to large cities, or even advocating the "cancellation of urban households." The correct way is to combine the support and guidance with integrated control and management, meaning to link the peasants moving to cities for economic activities with the demands of cities development; attract peasants to the building industry, service industry, and other industries as planned; facilitate the urban construction; and improve the weaknesses in urban economic work. In addition, China must strictly control the households of cities, especially the large cities; strengthen the management of the accommodation registration of the flowing population; promote the market, industrial, and commercial management; protect lawful operations; crack down on illegal crimes; ensure the invigoration and control at the same time; and adopt necessary flexible policies, in order to realize the macro control and maintain the vitality at the same time.

## 4.2 The Population Urbanization of China in the Twenty-First Century<sup>10</sup>

After the foundation of the People's Republic of China in 1949, population urbanization can be divided into three stages: the rapid development in the 1950s, stagnation in the 1960s and 1970s, and the acceleration in the 1980s. However, the reliability of the statistics shall be taken into consideration. The restricted criteria on the establishment of cities and towns adopted in 1963 had lowered the urban population, which was reasonably adjusted in 1984 and 1986. Based on the economic, population, and social development in China, the proportion of the urban population in

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<sup>10</sup>This article is the submitted as the paper of the Bilateral Seminar on the Development and Challenges of Chinese and Indian Cities, which was collected in the Road for the Urbanization of the Country with a Large Population edited by Tian Xueyuan, M. Mohanty (India), and Cai Fang, China Population Publishing House, 1998.

total population is estimated to increase from the current 30 to 35 % in 2000 and 48 % in 2010, equaling to the general level of other Asian countries or developing countries, and increase to 65 % by 2025, about 5 % higher than Asian countries or developing countries, equaling to average the world level. Currently, India and China share the same level of population urbanization, but China will see a more rapid development after entering the twenty-first century. China's principle of urbanization of "controlling large cities and focusing on the development of small cities" conforms to China's basic state conditions, including the large population and the structure of the "dual economy," and therefore will facilitate population urbanization. More importance shall be attached to the returns of the city scale, and more flexibility shall be added to the principle of "controlling large cities and focusing on the development of small cities" under the market economy. For developing countries of large populations such as India and China, the population urbanization shall be based on the sustainable development. It is the reasonable choice of China's population urbanization in the twenty-first century to transfer the surplus farming labors to various sectors of the agriculture, township enterprises, urban industry, and commerce; rationally deal with the relationship between urban construction and environmental protection; cast away the development based on the cost of environmental quality; and pursue the sustainable development of population, economy, resources, and environment.

## ***4.2.1 Assessment on the Statistics***

### **4.2.1.1 Reliability of the Data on China's Population and Urban Population**

The reliability of the data shall be firstly confirmed before the discussion on China's urban population. These statistics mainly come from the population census and sampled investigation, with a high accuracy of above 95 %, so they are essentially reliable. After the population census in 1953, a checking investigation of sampling on 52.95 million people was conducted. The result showed a repeated registration rate of 1.39‰, an omission rate of 2.55‰, and a net difference between the two rates of 1.16‰, compared to 0.7, 0.56, and 0.15‰ in 1982 and 0.1, 0.7, and 0.6‰ in 1990. According to the sampled investigation on 1 % of the population in 1995, the inaccuracy on the birth rate of the population was 0.73‰, and the inaccuracy on the death rate was 0.39‰.<sup>11</sup> Therefore, the population data including the urban population is essentially reliable.

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<sup>11</sup> *Population Census Data of China 1982*, China Statistical Publishing House, 1985, P535; *Population Census Data of China 1990*, Vol. 4, China Statistical Publishing House, 1993, P530; and *China Population* newspaper, Feb. 16 1996.

### 4.2.1.2 Main Problems of the Urban Population Statistics

The basic reliability of the statistics of China's population and urban population does not necessarily mean that no problem exists. The main problem lies in the several rounds of changes on the criteria for the urban population.

According to the *Decision of the State Council on the Establishment of Cities and Towns* in 1955, the city, as the administrative unit under the leadership of provinces, autonomous regions, and prefectures, can be established in a place gathering more than 100,000 people; and the city can also be established in the important industrial and mining base, the seat of provincial government, the center of the large-scale material distribution, or the remote place of strategic importance. The town, as the administrative unit under the leadership of counties, can be established in the seat of the state government of or above county level, or the place gathering more than 2,000 people including a considerable number of residents involved in industry and commerce; or can be established in the minority district gathering fewer than 2,000 people, but including a considerable number of residents involved in industry and commerce if necessary. In addition, the industrial and mining base can be established as a city based on large population and the leadership of the province; and the industrial and mining base can be established as a town upon a small population and the leadership of the county. Later, the *Decision of the State Council on the Division of Urban and Rural Areas* was released and clarified that stated cities and towns referred to the places of the seats of the people's committee of the municipal or county level; the residential districts with a regular population above 2,000, including more than 50 % of nonagricultural population; places of industrial and mining enterprises and research institutions and staff residential areas, with a regular population between 1,000 and 2,000 including more than 75 % of nonagricultural population; and the sanitarium area with the number of the recuperating taking up more than 50 % of local residents. The National Bureau of Statistics explained that "the criteria have referred to the standards of the Soviet Union and the practical situation in China." At that time, the Soviet Union provided that the places with a population above 1,000, including fewer than 25 % of residents, engaged in agriculture were defined as cities. China's criterion on the population scale was higher than the Soviet Union, and the criterion on the proportion of the nonagricultural population was lower than the Soviet Union.<sup>12</sup> This division standard constituted the foundation for the future division of rural and urban population, and the later changes only made some adjustments on these criteria.

In the 1960s, the agricultural output could not afford the cities and towns due to the rapid growth, so the government started to reduce urban population. In 1963, the CPC Central Committee and the State Council released the *Instructions on Adjusting the Establishment of Cities and Towns and Narrowing Suburbs* and regulated that cities can be maintained if the area gathers more than 100,000 people after streamlining the city staff, reducing the population, and narrowing the suburbs, or if the city with

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<sup>12</sup> *China Population Statistic Yearbook 1985*, China Social Sciences Publishing House, 1986.

a population smaller than 100,000 is the seat of the provincial state organizations, an important industrial and mining base, a large-scale material distribution center, or an important border town under the leadership of provinces or autonomous regions. Any city that did not meet the above conditions should be cancelled. Adjustments were also made on the establishment of towns, which regulated that towns can be established with a population above 3,000 and the proportion of nonagricultural population above 70 % or with a population between 2,500 and 3,000 and a proportion of the nonagricultural population above 85 % if necessary. The restrictions were relaxed in the minority district under the leadership of the state organs at a county level. Any town that did not meet the above criteria should be cancelled, including the qualified towns under the leadership of the people's community. In addition, the suburbs were narrowed and many areas were ruled as the villages.<sup>13</sup>

In 1984, the State Council approved the *Report of the Ministry of Civil Affairs on the Adjustments of the Criteria for the Establishment of Towns* and made great adjustments on the criteria for the establishments of towns in 1955 and 1963. The new provision formulated that towns should be established in any place of the seat of state organizations of the county level; towns could be established at the seat of a village government where the total population under 20,000, but the nonagricultural population exceeds 2,000; established in the seat of a village government where the total population exceeds 20,000 and the nonagricultural population accounts for above 10 %; or established in minority districts, remote places, and mountain areas, small industrial and mining areas, small harbors, places of interest, and border ports of a nonagricultural population fewer than 2,000, if it is really necessary.<sup>14</sup>

In 1986, the State Council approved the *Report of the Ministry of Civil Affairs on the Adjustments of the Criteria for the Establishment of Cities and Conditions for Cities Leading Counties*, which regulated that cities could be established in the town that had become the economic center of the district with an annual GDP over 200 million yuan and could be established in important towns in the minority district and remote district that did not meet the above requirements, if necessary. Counties could be transformed into cities if the county had a total population smaller than 500,000, and the town at the seat of the county government enjoyed a nonagricultural population over 100,000, the proportion of the agricultural population lower than 40 %, and an annual GDP over 300 million yuan; or if the county had a total population over 500,000, and the town at the seat of the county government enjoyed a nonagricultural population over 120,000 and an annual GDP over 400 million yuan. The criterion on the establishment of cities was more relaxed for the towns at the seats of the autonomous prefectures.<sup>15</sup>

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<sup>13</sup> *China Population Statistic Yearbook 1985*, China Social Sciences Publishing House 1986, P90–97.

<sup>14</sup> *China Population Statistic Yearbook 1985*, China Social Sciences Publishing House 1986, P98–99.

<sup>15</sup> *China Population Statistic Yearbook 1987*, Economy and Management Publishing House, 1988, P60–61.



## 4.2.2 *Review on the Variation of Urban Population*

### 4.2.2.1 **Rapid Growth in the 1950s**

The urban population had increased from 61.69 million in 1950 to 130.73 million in 1960, with a growth of 69.04 million in 10 years and an annual growth rate of 7.8 %. The proportion of the urban population had grown from 11.2 to 19.7 % (by 8.5 %). Two factors contributed to the rapid growth of the urban population. Firstly, the birth rate and natural increase rate of the urban population in the 1950s were respectively 36.6‰ and 2.7 %, which were higher than in the rural areas. The urban population had naturally increased by 18.83 million, accounting for 27.3 % of the total increased population. Secondly, the rural population had partly transferred to cities. 50.21 million people had been transferred in 10 years, accounting for 72.7 % of the total increased population. The two situations reflect that China's population reproduction had been transformed from the high birth rate, high death rate, and low growth to high birth rate, low death rate, and high growth rate and also revealed that a large number of the rural population had moved into cities owing to the accelerated development of industrialization in the 1st Five-Year Plan between 1953 and 1958.<sup>16</sup>

### 4.2.2.2 **The Stagnation in the 1960s and 1970s**

The urban population had grown from 130.73 million in 1960 to 191.40 million in 1980, with a growth of only 60.67 million in two decades and an annual growth rate of 1.92 %. The proportion of the urban population had declined by 0.3 % and maintained around 17 % for several years. The natural growth rate of the urban population in this period was 1.48 %, and the accumulated number of population that increased from natural growth was about 44.65 million. Only 16.02 million people had been transferred from rural areas to urban areas, with an annual transfer of only 801,000.<sup>17</sup> The reasons included the following: Firstly, the slow economic development and stagnation of the urban industry and commerce, especially the economic collapse in the period of the "Great Revolution," made it impossible to attract rural labors to seek jobs and do businesses in cities. Secondly, at that time, China criticized the "capitalist industrialization" that advocated developing the light industry first to provide accumulations and relied directly on agriculture for industrialization. When agriculture could not afford industrialization, the government streamlined the staff members in cities and reduced the urban population to release the pressure on agriculture exerted by industrialization, leading to the constant decline of the urban population between 1960 and 1963. Thirdly, in addition to the

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<sup>16</sup> *China Population Statistic Yearbook 1987*, Economy and Management Publishing House, 1988, P617.

<sup>17</sup> *China Population Statistic Yearbook 1987*, P617.

stagnation of the urban population in these 20 years, careful attention should be paid to the statistics, because the strict criteria on the establishment of cities and towns had divided some of the original urban population to rural population and restricted the increase of the urban population. In this sense, the absolute quantity and proportion of the urban population of the 1960s and 1970s were lower than the practical population urbanization level.

### 4.2.2.3 Accelerated Development Since the 1980s

Since the reform and opening up, Chinese economy has embraced constant, rapid, and healthy development. The GDP in 1996 was 4.7 times the GDP in 1980, according to the comparable price.<sup>18</sup> Particularly, the development of township enterprises has absorbed a large number of surplus agricultural labors and greatly promoted the population urbanization based on the transfer from the rural to urban population. The reform and opening up, especially the reform aiming to establish the market economy system, played a decisive role, which greatly facilitated the population flow and the communications of commodities, capitals, technologies, and information and invigorated the labor market. The surplus agriculture labors entering the urban industry and commerce have become the vital force for urban construction and the township enterprises. The population urbanization is therefore accelerated. The urban population of China has increased from 191.4 million in 1980 to 359.5 million in 1996, with a growth of 168.1 million and an annual growth rate of 4.0 %. The proportion of the urban population has correspondingly grown from 19.4 to 29.4 %, ending the stagnation in the previous two decades. The adjustments on the criteria on the establishment of towns in 1984 and on the criteria on the establishment of cities in 1986 have significantly promoted the increase of the urban population and the process or urbanization. However, the author considers the two adjustments were proper, reflected the practical situation, and made China's definition on the urban population closer to international cities.

## 4.2.3 *The Trend of the Population Urbanization in the Future*

### 4.2.3.1 Development Trend

In view of the above assessment and statistics of the criteria on the urban population, the urbanization level published by the Chinese government is lower than the practical situation, according to common international organizations. For example, after the economic survey on China in 1984, the World Bank stated its incomprehension with China

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<sup>18</sup> *China Statistical Yearbook 1996*; "Statistical Bulletin of the National Bureau of Statistics on the Development of the National Economy and Society in 1996", *The People's Daily*, April 5 1997.

**Table 4.1** Estimations on population urbanization of China between 1995 and 2025 (unit: million people, %)

Year	Total population	Low level		Medium level		High level	
		Urban population	Proportion in total population	Urban population	Proportion in total population	Urban population	Proportion in total population
1995	1,211.21	363.36	30.0	363.36	30.0	363.36	30.0
2000	1,280.00	437.85	34.2	448.50	35.0	454.98	35.5
2010	1,378.80	611.69	44.3	663.89	48.1	693.16	50.3
2025	1,518.70	873.03	57.5	990.04	65.2	1,079.92	71.1

listing the area with a population of several thousand, including many nonagricultural labors, as a rural area, and it estimated that China's urban population had reached about 34 % of the total population. The World Bank's report attributed China's population division to the "special economic structure of China."<sup>19</sup> The author agrees to define the urban areas and urban population comprehensively from the perspectives of demography, economics, and sociology, including the area under the jurisdiction of the administrative unit, population concentration, proportion of the nonagricultural population, and infrastructure conditions (according to Naris Sadik, the Executive Chairman of the United Nations Population Fund in 1996). From this aspect, the urban population, as published by the Chinese government, basically accords to Chinese practices, but the government's population number may be slightly smaller than the actual number, which greatly varied with the World Bank's estimation. The author here proposes estimations of three different levels for the growth of the urban population from 1995 to 2025, with the 30 % of urban population in 1995 as the basis (1 % higher than the data published by the government). Refer to Table 4.1.

The medium level in Table 4.1 estimates that the annual growth rate will be 4.3 % of the urban population between 1995 and 2000, which generally equals the growth rate of the urban population since the reform and opening up. However, it is impossible to maintain this speed in the 9th Five-Year Plan. It is estimated that the annual growth rate will be 4.0 % between 2000 and 2010, slightly lower than the 9th Five-Year Plan, and estimated that the annual growth rate will be 2.7 % between 2010 and 2025, including 3.7 % between 2010 and 2020, with a slight decline, and 0.8 % between 2020 and 2024, with a great decline. This is because that the population urbanization will develop fast based on the rapid economic growth and will maintain the high growth rate of the urban population for a long time, since the current level of population urbanization is low. Moreover, after the rapid growth for more than two decades, the growth of the urban population will be lowered in the twenty-first century. The low- and high-level estimations are more flexible, and generally, the level of the population urbanization will not be lower than the low-level estimation or higher than the high-level estimation. This estimation is close to the

<sup>19</sup> *Urbanization: International Experiences and Prospects in China*, background information for the World Bank's economic survey on China, China Meteorological Press, 1984.

**Table 4.2** International comparison of the variations of the proportions of the urban population in China, India, and other places (unit: %)

Year	1995	2000	2010	2025
China	30.0	35.0	48.1	65.2
India	29.4	32.3	39.3	51.5
Asia	38.6	42.7	49.7	59.5
Developing countries	41.2	45.1	51.8	61.2
Developed countries	73.6	74.9	77.9	82.5
World	48.1	51.1	56.5	64.6

Data source: This is the estimation made by the author's team; United Nations [21]

United Nations, especially after 2010, with only a slight difference of 0.6 % for 2025. However, owing to the overestimation of China's urbanization level, the estimations of the United Nations over the recent period vary from this table.<sup>20</sup>

#### 4.2.3.2 International Comparison

Based on the comparison between the above medium-level estimation and the estimations of the United Nations on the population urbanization of the world, the conditions in China, India, Asian countries, developing countries, and developed countries are listed in Table 4.2.

Table 4.2 shows that India and China currently share the same level of population urbanization, with the urban population accounting for about 30 % of the total population, which is 9 % lower than the average Asian level, 11 % lower than developing countries, 18 % lower than the average world level, and 44 % lower than developed countries. The two countries suffer backward urban and rural areas. Their important task in the twenty-first century is to properly facilitate the speed of population urbanization. By comparison, China may enjoy a more rapid growth in the population urbanization, reach the level of Asian countries and developing countries in 2010, and exceed them and reach the average world level by 2025.

### 4.2.4 Population Urbanization and Sustainable Development

#### 4.2.4.1 Principle of the Urbanization

China has adhered to the principle of urbanization of "controlling the scale of large cities, properly developing medium cities, and actively developing small cities" for years. Compared to 1985, the proportion of the population in cities having more than 2 million people had declined from 21.8 to 10.1 % in 1995, the

<sup>20</sup>Data source: this is the estimation made by the author's team; United Nations [21].

proportion of the population in cities living 1–2 million had dropped from 25.9 to 8.0 %, and the proportion of the population in cities with 500,000 to 1 million had dropped from 28.6 to 8.6 %. In total, the proportion of the three items above had dropped from 76.3 to 26.7 %, a decline of 49.6 %. The proportion of the population in cities with fewer than 300,000 people was 9.4 % in 1985, while the population in cities with fewer than 200,000 people accounted for 43.0 % in 1995, which demonstrated the rapid population growth in medium and small cities, and the fundamental change of the population structure of small, medium, and large cities.<sup>21</sup> It can be seen that the principle of urbanization of “controlling large cities and focusing on the development of small cities” adapts to China’s basic state conditions of large population and the “dual economy.” The principle can lower the cost of urbanization and facilitate the population urbanization. However, based on the relation between the cost and efficiency of urbanization, i.e., the analysis of the input and output of population urbanization, the principle may not comply with the principle of output maximization. Therefore, in order to increase the flexibility of the original urbanization principle, flexibility should be applied in the “control of large cities” and “focus of small cities” during the reform of the market economic system.

#### 4.2.4.2 Adhering to Sustainable Development

*The Ninth Five-Year Plan for National Economic and Social Development and the Outline for the Long-Range Objective Through the Year 2010* approved by the 4th meeting of the eighth National People’s Congress clearly proposed the strategy of sustainable development as the guideline for the population urbanization in the twenty-first century. The above principle of urbanization of “controlling large cities and developing small cities” also adapted to the strategy of sustainable development, which shall be further implemented. In addition, in order to realize the sustainable development of urbanization, importance shall be attached to the rational transfer of the surplus agricultural labors and surplus rural population and the improvements of the city environment.

#### Rational Transfer of the Surplus Agricultural Labors and Surplus Rural Population

The transfer of the surplus agricultural labors and the transfer of the surplus rural population are different extensions of the same problem, with labor transfer as the core. In 1994, the State Council approved the *Agenda for 21st Century—White Paper on Population, Environment, and Development* in the 16th standing conference, which stated that the current surplus agricultural labors reached more than 100 million and would climb to 200 million in 2000. How many of them can be

<sup>21</sup> *China Statistical Yearbook 1996*, P326–327.

**Table 4.3** Land resources in China

	Area (million hectares)	Proportion in total land area (%)
Arable land	94.97	9.89
Forest	128.63	13.39
Inland water	17.47	1.82
Grassland	400	41.62
Others	319.86	33.28

Data source: *China Statistical Yearbook 1996*, P5

transferred to urban areas? The *Ninth Five-Year Plan and the Outline for the Long-Range Objective Through the Year 2010* proposed to transfer more than 40 million to nonagricultural labors in 5 years. In view of this, the surplus agricultural labors would maintain at about 160 million by 2000, which cannot be accepted by the intensive management of agriculture. However, the urban infrastructure and the urban industry and commerce will not be able to afford if more rural labors are transferred. The contradiction between the urban capacity for the absorption of surplus rural labors and the remaining surplus rural labors is very prominent. The solution lies in the diversion of surplus agricultural labors to different channels, including to the farm, forestry, animal husbandry, and fishery; township enterprises; and industry and commerce in cities. Currently, the 200 million surplus agricultural labors mainly concentrate on the planting, and they shall be transferred in diversified ways. Land is the foundation of agriculture. The land resources provide the conditions for the transfer from surplus agricultural labors in planting sector to other sectors. See Table 4.3.

Table 4.3 shows that the surplus agricultural labors shall be firstly transferred to forest, grassland, and inland water to develop forestry, animal husbandry, and fishery. If it is successful, 1/3 of the surplus agricultural labors are effectively transferred. Another 1/3 can be transferred to township enterprises, and the other 1/3 can be transferred to urban industry and commerce. In this way, the surplus agricultural labors and rural population can be rationally transferred to urban industry and commerce and urban population. The rational transfer is practical and can avoid the overexpansion of the urban population. In addition, it can give full play to the land resources and promote the sustainable development of population and land resources.

### Improvements of the Environmental Quality of Cities

Singapore is a beautiful country, often deemed a “garden city” because many equate its beauty to that of a garden. Its high environmental quality profits from an important principle that the ratio between the building and its surrounding green coverage shall be controlled within 0.35:0.65. As a developing country of rapid economic growth and population urbanization, China suffers prominent contradiction between the urban construction and environmental protection. The first problem is the

shortage of water resources. China’s per-capita water resources only equal 1/4 of the average world level, and 80 % of water resources are distributed in the land south to the Yangtze River that only occupies 40 % of the total land area. More than 60 % of the current 640 cities are seriously lacking water. The second problem is the environmental protection. Modern urbanization is linked with industrialization, which, especially in the primary stage of industrialization, is linked with the pollution of air, water, and land. The “three wastes,” (waste gas, waste water, and waste residue) are still increasing; and some cities cannot be seen from satellites due to this pollution. The noise pollution has sharply increased into a public hazard that threatens residents’ health. The third problem lies in the backward urban infrastructure, including the lack of housing, heavy traffic, and the hospitals and schools that cannot satisfy the residents’ demands. The Chinese government has clarified in both theories and policies to list the environmental protection as the basic state policy, in addition to the population control. Urban construction is required to not damage the environment. The construction and treatment shall be conducted at the same time. However, as restricted by capitals and technologies, many cities still adopt “treatment after construction,” or even “construction without treatment.” The fundamental goal for industrialization and economic development is to make the life of all residents, including the urban population, better. The industrialization and urban development based on the cost of environmental quality are not accepted. It is the rational choice for China’s economic and social development at the turn of centuries and the necessary choice for the population urbanization in the twenty-first century to improve the environmental quality and pursue the sustainable development of population, resources, environment, economy, and society.

### **4.3 The Warning Against the “Trap in Latin America” in Population Urbanization<sup>22</sup>**

Since information technologies and economic globalization have accelerated in the twenty-first century and the world’s current urban population has taken up approximately 50 % of the total population, more and more countries and regions have stepped to the second stage of population urbanization, led by large cities. China has also begun the general transition from the first to second stage of population urbanization, i.e., the transition from mainly developing small towns to mainly developing large and extra large cities. However, China shall carefully summarize its own experiences and research and draw both positive and negative experiences from the process of population urbanization in foreign countries, especially the “Trap in Latin America,” which is the key to the success of the second stage of population urbanization.

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<sup>22</sup>This article was originally published on the *Macroeconomic Study* by the National Development and Reform Commission, 2nd issue, 2006.

### 4.3.1 *General Judgment: China Has Stepped into the Second Stage of Population Urbanization*

Population urbanization, the geological distribution reflecting the economic development and social progress, is the global trend. As the developing country of the largest population and most rapid development, China is also leading the way of population urbanization. Generally, population urbanization can be divided into three stages: in the first stage, the rural population mainly transfers to small and medium cities and towns, which is known as the rural urbanization; in the second stage, people in rural areas and small and medium cities and towns mainly transfer to large cities, constituting the population urbanization guided by the development of extra large cities; and in the third stage, the people in the center district of large countries transfer to suburbs and other villages, which is known as counter-urbanization. From the overall perspective, the current population urbanization in China has, with the development of extra large cities as the guiding force, stepped into the second stage.

After World War II, the microelectronic technological revolution emerged. Developed countries have created the postindustrial times, while developing countries promote the parallel development of traditional and modern industry, both of which have facilitated population urbanization. According to the United Nations Population Division, the proportion of the urban population around the world was 29.8 % in 1950, which rose to 39.6 % in 1980 and 49.3 % in 2005 [22]. China's population urbanization experienced rapid development in the 1950s, stagnation in the 1960s and 1970s, and accelerated development after reform and opening up; and the proportion of urban population has grown from 11.2 % in 1950, 19.4 % in 1980, 26.4 % in 1990, and about 43 % in 2005,<sup>23</sup> reaching the average level of developing countries. See the comparison of the population urbanization of China, the world, and developing countries in the recent half-century in Fig. 4.3.

According to the comparison of the urbanization of China, the world, and developing countries between 1950 and 2005 as shown in Fig. 4.3, the biggest difference lies in that China only started accelerated growth after the two-decade stagnation between 1960 and 1980, compared to the steady development in the world and developing countries. Two points shall be noted in the analysis of the current population urbanization trend in China.

Firstly, the population urbanization has been accelerated since the reform and opening up. The proportion of urban population has increased from 18 % at the beginning of reform and opening up to the current 43 %, with a 25 % growth in 27 years and an annual growth rate of 0.93 %. Two factors contribute to this situation: Firstly, 300 million surplus labors in rural areas need to be transferred to urban areas within half a century; secondly, urban areas need a considerable

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<sup>23</sup>Data source: *China population statistic yearbook 2001*, China Statistical Publishing House, 2001, P200; *China population statistic yearbook 2005*, China Statistical Publishing House, 2005, P93.



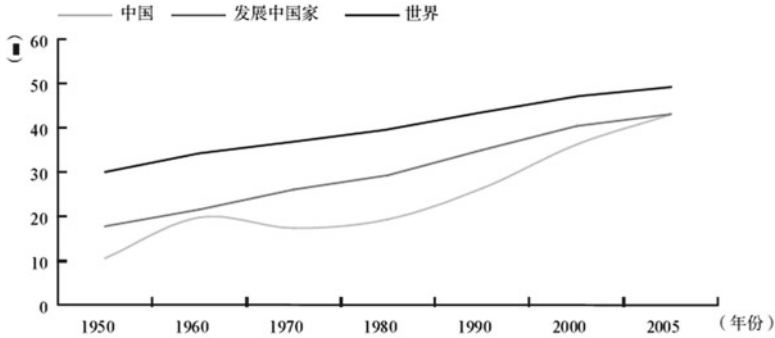


图 1 中国与世界、发展中国家城市化比较

中国 China; 发展中国家 Developing countries; 世界 World; 年份 Year

Fig. 4.3 Comparison of the urbanization of China, the world, and developing countries

amount of labors in industry and commerce to realize the development strategy of the “three-step development.” Therefore, the speed of the population urbanization may be maintained in the historical stage of building a well-off society in an all-around way, based on the constant and rapid economic growth and social progresses, which can be demonstrated by the development course of population urbanization in other countries.

Secondly, China is now placed at the historical turning point of population urbanization and stepping into the period of urbanization guided by large and extra large cities. Before the 1990s, China had adopted the urbanization principle of actively developing small cities, properly developing medium cities, and strictly restricting the scale of large cities. At that time, China emphasized that peasant workers should leave their farmland, but stay in their hometowns and focused to develop small cities to solve the “big problem” of the rural and urban economic development and transfer of surplus agricultural labors. Along with the emergence of township enterprises in the 1980s, rural urbanization had become the main characteristic of population urbanization. However, due to the increasingly severe resources and environmental problems, the township enterprises of high-energy consumption and low efficiency could no longer prosper as before, so the development of small cities had become the “big problem.” Therefore, China began to transfer to the urbanization guided by large cities. See Fig. 4.4.

According to the comparison between 1990 and 2002 as shown in Fig. 4.4, the proportion of the people living in cities with a population lower than 500,000 had dramatically declined, especially the decline of 5.5 % in the cities of 100,00–300,000 people, followed by the decline of 2.42 % in the cities of 300,000–500,000 people; the cities with a population over 500,000 had seen a significant growth, with a 5.74 % increase in cities above 2 million people, followed by 1.2 % for cities with 1–2 million people, and less than 1 % for cities of 500,000 to 1 million people. This situation illustrates that after China’s population urbanization rate had exceeded 40 %, China

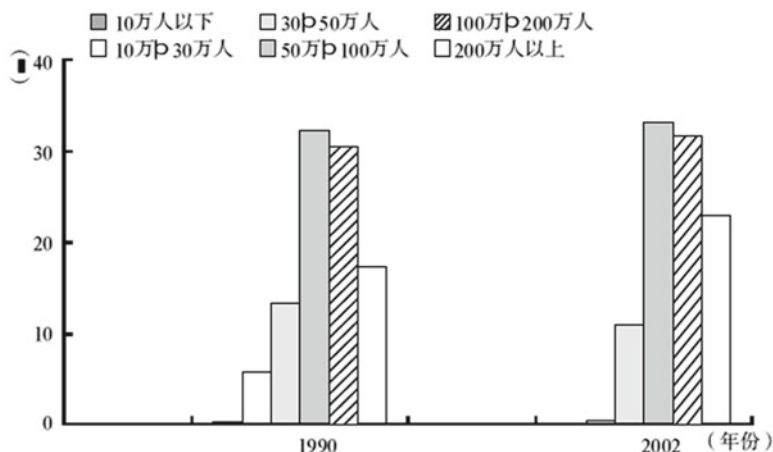


图 2 1990—2002 年中国城市人口规模结构变动

资料来源：《中国人口统计年鉴 2004》，第 255—262 页；《中国统计年鉴 1991》，第 653 页。

10万人以下 Below 100,000 people

30-50万人 300,000-500,000 people

100-200万人 1 million-2 million people

10-30万人 100,000-300,000 people

50-100万人 500,000 people – 1 million people

200万人以上 Above 2 million people

年份 Year

Data source: China population statistic yearbook 2004, P255-262

China population statistic yearbook 1991, P653

Fig. 4.4 Variation of the structure of Chinese cities with different population scales between 1990 and 2002

has stepped into the second stage of population urbanization guided by large cities. After 2002, the guiding role of large cities has been further strengthened. China's new urbanization principle and policy shall adapt to the development laws of this period, give priority to the development of large cities, and give full play to the role of large cities.

#### 4.3.2 “The Trap in Latin America”: Main Risks for Current Population Urbanization

In the history of world population urbanization, the urbanization guided by the development of large and extra large cities can be divided into four types.

The first refers to the European cultural cities, with Paris and Barcelona as the representatives. Based on the cultural background of the Renaissance in Europe and the economic and technical background of the emergence of the industrial revolution in the mid-eighteenth century, these extra large countries have developed to be the group of large cities featured with democracy and equality and supported by advanced science, technologies, and industry. The second type refers to the economically intensive cities, with New York and Tokyo as representatives. These cities have formed the group of extra large cities with manufacturing, finance, and commerce as the pillar industries, which develop through scientific and technological progress and the upgrading of the industrial structure. They are playing the role as the center, guidance, and radiation point. The third type is the scattering cities in the Midwestern United States, with Los Angeles and Salt Lake City as representatives. The transfer of eastern immigrants to the west generated these cities during the development of western regions and immigration to the western region of the United States. These three types of groups of cities are established based on certain cultural cohesion or modern industry, science, and technologies. Despite many problems, these cities have followed the urbanization method combining the market economy and humanistic concepts with coordinated structures between rural and urban areas or within the cities. These cities do not give rise to more social conflicts, and many successful experiences can be drawn from them.

The fourth type is the distorted development in Latin America, with Mexico City, Rio de Janeiro, Buenos Aires, Bombay, and New Delhi as representatives. These countries are mainly distributed in developing countries that were originally colonies or semicolonies. Since most of them are located in Latin America, this situation is known as the over-urbanization of “Latin American distortion.” The basic characteristics can be summarized as the coexistence of “three distortions.” The first is the coexistence of distorted advancement and distorted backwardness. These extra large cities own advanced science and technologies, modern industries, high-class housing, and corresponding modern facilities, but meanwhile primitive handcraft production, residential areas for the poor without basic public facilities, and a large number of slums at the joint of the rural and urban areas exist in these cities. The second is the coexistence of distorted affluence and distorted poverty. Businessmen, bankers, and senior officers enjoy considerable incomes, while the poor people, particularly the residents in slums, have absolutely no income, and even a large number of the poor have to live by begging for money. The third is the coexistence of the distorted civilization and distorted ignorance. The rich, who share a similar modern civilization with developed countries, have mainly occupied resources on education, health care, and culture, but the poor have no resources and cannot attend school, visit a doctor, or enjoy the civilized life of this age. The population urbanization in Latin America is featured with high polarization between the rich and poor, where the rich (10 % of the total population) take up more than 60 % of the total income, the poor people account for more than 40 % of the total population, and more than 60 % of the poor are living in extra large cities. Therefore, in Latin America, a large group of the unemployed population has been generated in cities, resulting in an unemployment rate over 10 %, ranking the first among all continents; intensified social conflicts and

social problems such as the public security have greatly affected political stability; governments are financially crippled and greatly rely on foreign aid for urban governance, leading to a great deal of debt; cities seriously lack public facilities and suffer from bad traffic conditions, short supplies of water and gases, and a polluted environment; the sharp rise of the land price in wards forces the unemployed and peasant workers to transfer to suburbs, so the large area of slums is gradually formed and surround the city centers, which stand in glaring contrast to the modern centers of these cities. The distorted development of the population urbanization in Latin American countries inhibits rural and urban economic development, burdens state finance, and impedes the social development, instead of invigorating the development cities or creating opportunities for rural and agricultural economy. Therefore, every country should be alert against the “trap in Latin America” during the process of population urbanization. However, many countries have fallen into the “trap in Latin America” in different degrees due to a low economic development level, weak control of the government, and value orientation of the people, which will finally restrict economic development and social progresses.

Different from Latin American countries, China has not fallen into the “trap in Latin America” during population urbanization, which is a great achievement admired by international society. Some scholars praise it as one of the two greatest achievements in the twenty-first century, comparable to the scientific and technological progress of the United States. However, based on the careful study on China’s population urbanization that is stepping into the second stage at the turn of the century, it can be found that the situation is changing. China has the risk of falling into the “trap in Latin America” without scientific development strategies and effective measures for urbanization.

The theory on the metropolitan circle of population urbanization finds its origins in French and Italian geographers and economists in the mid-nineteenth century, with Jean Gottmann’s theory on the “metropolitan region” and Francois Perroux’s theory on “growth pole” as the representatives. They proposed and demonstrated that the economic regions of urban industrial chains formed by a considerable amount of large and medium cities and led by extra large cities generally take up 65–80 % of the total GDP of their countries and become the most important economic “growth poles,” known as the metropolitan-region urbanization, such as the New York-centered eastern economic zone and Chicago-Great-Lakes-centered middle economic zone of the United States, Tokyo-Tokaido-centered economic zone of Japan, London-centered economic zone of the United Kingdom, and Paris-centered economic zone of France. However, this theory was only considered as a regional explanation on the economic development of development countries and did not draw much attention. Twenty years later, when China was seeking for the new urbanization theory after many problems of “rural urbanization” were revealed, this theory rapidly spread over the academic circle of China and was regarded as the theoretical basis for the urbanization principle of “focusing on the development of large cities instead of small cities.” As guided by this theory, the transition and upgrading from small cities and towns to medium cities, and onwards to large and extra large cities, were started, resulting in the rapid increase of the proportion of the

population living in large and extra large cities. The large cities, especially the extra large cities, have expanded their area, rushed to encompass more land, make more grassland areas, build high buildings, build squares and widen roads, and highlight the “performance of governments” with great projects. However, peasants’ land has been often illegally enclosed, leading to the increase of the number of peasants without land. Different than peasants that came to cities in the first stage of rural urbanization, these peasants without land have no way to return to their original status as peasants, but are marginalized in cities. Without corresponding jobs and stable accommodations, these peasants have to gather at public spaces, mountains, riverbanks, or farther suburbs and form the concentrated residential zone of peasants, such as the “Xinjiang Village” and “Zhejiang Village.” These residential zones are distinguished from the slums in Latin America because the peasants in China are mostly active participators in the urban market economy. However, they accommodation conditions, production essence, public health conditions, and the education of themselves and their children are quite close to those living in Latin America. It shall also be noted that the reconstruction of old areas of cities and the construction of infrastructures and image projects such as squares and grasslands need to occupy a great deal of space and may lead to many new conflicts and problems if the residents who relocated due to building demolition do not receive fair compensation. The unemployed and poor people in cities with low incomes and living standards may also be marginalized as the allies of the peasants without land. At the same time, under the pressure to lower the threshold for peasants coming to cities and break the dual structure of rural and urban economy, the original set of the urban management system and measures have been prejudiced, or even cancelled, while the new system and measures have not been rationalized; so the government’s functions in macro control and management have been weakened. Therefore, when China’s urbanization steps into the second stage, guided by the development of large and extra large cities, the risk of falling into the “trap in Latin America” is increased, which is incompatible with constant, rapid, and healthy economic development, establishing the well-off society in an all-around way and building a socialist harmonious society. It is necessary to find out the fundamental and effective solution to this situation.

### ***4.3.3 Decision Selection: Basic Principle of Transforming Peasants to Citizens***

The most fundamental way to avoid the “trap in Latin America” in the process of population urbanization is to transform the peasants who are currently seeking jobs and doing businesses in cities into real citizens. However, it does not necessarily mean to change every peasant coming to cities to a citizen, but direct attention to the peasants that have practically become true citizens. Therefore, a sober estimation shall be made on the current process of population urbanization in China; and then the corresponding decision selection shall be made under the development trend.

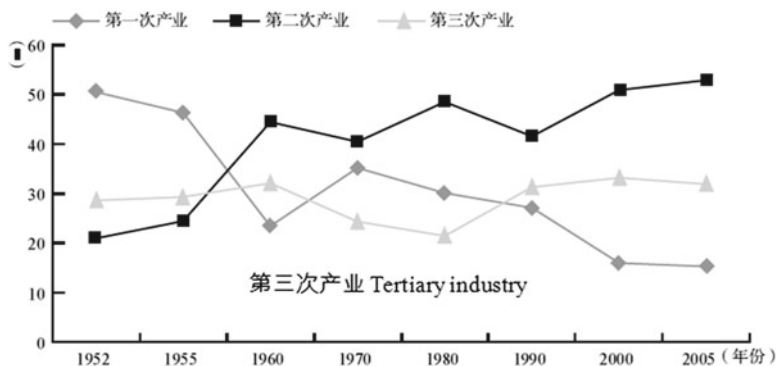


图 3 中国三次产业结构变动

第一次产业 Primary industry; 第二次产业 Secondary industry  
第三次产业 Tertiary industry; 年份 Year

Fig. 4.5 Variation of China's structure of the three industries

#### 4.3.3.1 Correctly Define the Connotation of Urbanization and Properly Facilitate Population Urbanization

From the perspective of demography, urbanization refers to the process of transferring from rural population to urban population, i.e., the rural and urban structure of the population. From the perspective of the study on labors, urbanization refers to the distribution of employment in the primary, secondary, and tertiary industries, i.e., the employment structure. From the perspective of economics, urbanization refers to the variation of the structure of three industries; and from the perspective of sociology, urbanization refers to the way of production and living in the industrial society replacing the agricultural society and industrial civilization replacing the agricultural civilization. Therefore, urbanization is not only the geographic transfer from rural to urban population but also the reflection of the population change, the upgrading of the industrial structure, and progress of modern social civilization. The process of urbanization shall accord to the pace of the change, upgrading, and progress; and the urbanization level shall comply with the social economic development level. The backward urbanization will inhibit economic and social development, while the advanced urbanization will incur various social problems. Both situations are unfavorable for the coordinated development of population, economy, and society. Generally, China's main contradictions are the backward structure of urban and rural population compared to the employment structure of the three industries and the backward employment structure of the three industries compared to the structure of the three industries based on the output value. See details in Figs. 4.5, 4.6, and 4.7.<sup>24</sup>

<sup>24</sup>Data source: *China Statistical Yearbook 2005*, China Statistical Publishing House, 2005, P34. The structure and employment structure of the three industries are based on the statistics of 2004.

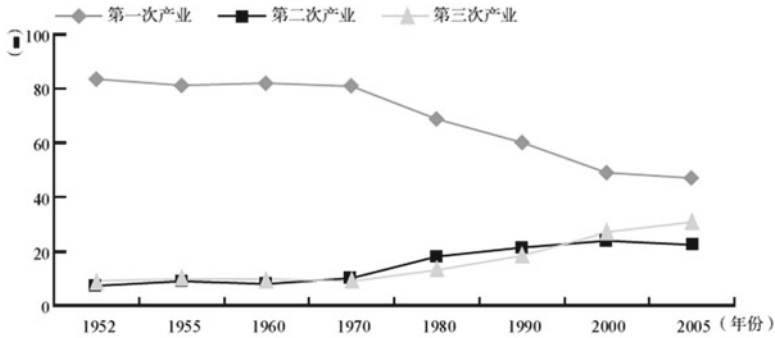


图 4 中国三次产业就业结构变动

第一次产业 Primary industry; 第二次产业 Secondary industry  
第三次产业 Tertiary industry; 年份 Year

Fig. 4.6 Variation of China's employment structure of the three industries

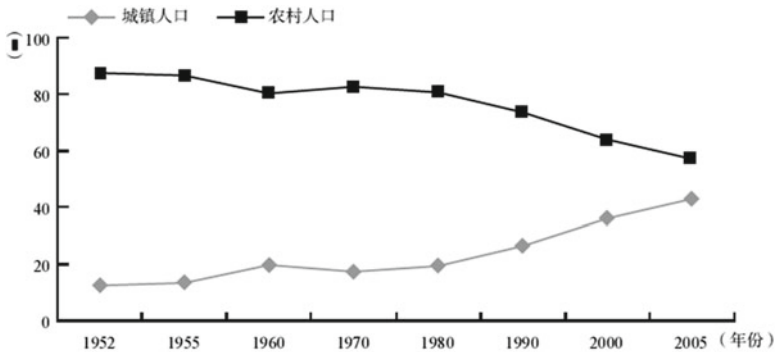


图 5 中国人口城乡结构变动

城镇人口 Urban population; 农村人口 Rural population; 年份 Year

Fig. 4.7 Variation of the structure of urban and rural population in China

According to the theoretical model of Syrquin M. and H. B. Chenery, when China's structure of the three industries based on GDP reached 15:53:32 in 2004, the employment structure of the three industries should have been 40:25:35 and the structure of urban and rural population should have been 60:40. However, the actual employment of the three industries and the structure of urban and rural population were much more backward. Therefore, at least in the 20 years of building the well-off society in an all-around way, China shall continue to properly accelerate the transfer from a rural to an urban population and promote the process of population urbanization. Meanwhile, China shall also draw lessons from the over-urbanization in Latin American countries and make certain the speed of population urbanization

comply with the economic and social development and the construction of the socialist harmonious society. The pace of population urbanization shall be well handled to avoid the over-urbanization or delay of urbanization.

#### **4.3.3.2 Correctly Orient the Principle of Urbanization and Pursue the Coordinated Development Between Large, Medium, and Small Cities and Rural Areas**

As mentioned above, China adopted the urbanization principle of mainly developing small cities and restricting the scale of large cities before the mid-1990s. Since the turn of the century, China has gradually started the urbanization road of emphasizing the development of large cities instead of small cities and the “metropolitan area-style” urbanization guided by extra large cities. Based on China’s large population, small area of arable land, transformation of industrialization from heavy industry to modern industry, and urban population accounting for more than 40 %, it is the natural choice to lead the way of “metropolitan area-style” urbanization guided by extra large cities in the twenty-first century. According to estimation, the small cities that enjoy the same urbanization level with large cities cover twice the area of large cities. Compared to small and medium cities, only the large cities can play the role as the center, guidance, and radiation point, and are featured with a much greater accumulation effect. Currently, the three metropolitan areas, including the Pearl River Delta area, Yangtze River Delta area, and the Haihe River Delta area, cover less than 5 % of the total land of China, accommodate about 12 % of the total population, and take up more than 40 % of total GDP. In the process of information-based development and economic globalization, large cities show obvious comparative advantages in science, education, information, and culture. However, the following shall be clarified. On one hand, as a developing country with the largest population where zero growth can only be realized after a further increase of about 200 million people, the author still adheres to the transfer strategy of transferring 1/3 from the planting sector to urban population; another 1/3 to forestry, animal husbandry, sideline, and fishery sectors including the township enterprises; and the remaining 1/3 in the planting sector; this is all to be done in the next two decades of building the well-off society in an all-around way. If the transfer strategy can be well implemented, China’s proportion of the urban population will reach about 50 % by 2010 and 60 % by 2020, the average world level. Despite the loud cries for the acceleration of urbanization and “metropolitan area-style” urbanization, China shall avoid the “acceleration” based on speculation or the “upgrading battle” among cities. The “metropolitan area-style” urbanization does not mean that the bigger city scale is better, but refers to a rational structure of big, medium, and small cities. Undoubtedly, the Pearl River Delta area is the most active, the Yangtze River Delta area is the most powerful, and the Haihe River Delta area is of the greatest scientific and technological potential; the three areas will see great development in future. However, restricted by natural, economic,



political, cultural, and national factors, the three areas cannot total more than 2/3 of the total national GDP, like the metropolitan areas in developed countries do, despite their rapid economic development. In addition, due to the unbalance in China’s economic and social development, many other forms of urbanization guided by extra large cities, other than the three Delta Areas exist, including the method of the bilateral “growth pole” led by two center cities, such as Ji’nan–Qingdao, Shenyang–Dalian, and Chengdu–Chongqing, as well as the regional economic growth guided by one center city (mainly the provincial capitals). No matter which form is adopted, a great amount of small and medium cities, counties, and towns will be incorporated. It is reasonable to pursue the rational structure of large, medium, and small cities and the economic and social structure upon the unified design between the city and countryside, instead of excessively developing extra large cities.

#### **4.3.3.3 Correctly Orient the Position of Peasant Workers and Seek for a New Idea for Urban Construction and Development**

The “trap in Latin America” is a representative of the “disease of large cities” in developing countries. The direct cause is that peasants coming to cities do not receive a fair position and treatment or become a real citizen. Based on the practices in China, solutions shall be found to the main problems on the peasants that have already obtained the qualification as the regular residents in cities, explained below.

##### **Give Peasant Workers the Same Status and Rights as Urban Residents**

Though the restrictions on peasant workers seeking jobs and doing businesses in cities have been released, many cities, especially large and extra large cities, still set up thresholds for them. For example, some enterprises only employ workers with a locally registered permanent residence; the purchase of economic affordable houses requires certificates from the work units and excludes the peasant workers; and peasant workers’ children have no right to receive an education in cities. However, peasant workers might be marginalized if they cannot enjoy the basic rights of accommodation, employment, and education.

##### **Provide Peasant Workers with More Opportunities of Accommodation and Employment**

Accommodation and employment are the two major demands placed upon peasant workers in cities, as well as the basic conditions for the labor reproduction. A main lesson from the “trap in Latin America” during urbanization is that the peasants coming to cities cannot rent common houses due to low

income or unemployment and have to live in mountains or public spaces and build simple houses with waste bricks. This situation gives rise to the closed or semi-closed slums without safe water, facilities for basic public health, or necessary communication equipment, which may become a place with a high crime rate, greatly threatening social security. In order to avoid this situation, China shall adopt market and governmental measures at the same time to help peasant workers with the accommodation problem. Accommodation is closely related to employment, since a positive solution to employment can create the necessary conditions for the solution to the accommodation problem, and a bad decision will adversely affect the solution to the accommodation problem. Currently, in addition to the “shortage of labors,” the prominent problem is that the peasant workers are generally low in the cultural and educational quality and have not accepted any professional technical training, and they cannot find jobs after they arrive in cities. The employment of peasant workers shall be given priority, in order to avoid the “trap in Latin America.” The occupational training shall also be provided to create more job opportunities for them.

#### Open the Green Passage for the Free Flow of Peasant Workers

A fundamental factor contributing to the formation and expansion of the slums in Latin America is that the peasants completely lose their land after they come to cities and have no way back. The expansion of cities, especially large cities, in China has already led to a large number of peasants without land, who have to rely on cities for their livelihood. Therefore, China shall occupy as little arable land as possible during urbanization, leave the peasants that have come to cities with contracted land (for a time), enable them to return to their land if they cannot survive in cities, and ensure their free flow in a certain period. For the peasants losing land during the land expropriation, reasonable compensation shall be given to them to avoid any exploitation by unequal exchange, and employment contracts shall be signed with them to ensure their stable work and comparatively stable income in cities.

#### Incorporate the Production and Living of Peasant Workers into the Urban Development Planning

In order to realize the sustainable development of the urban population and economy, it is necessary to incorporate the employment, accommodation, education, cultural life, and community management of peasant workers of cities into the long-term urban construction planning. The government policies shall also favor peasant workers and their families if possible, to enable them to share the results of urban construction; enhance their confidence in integrating in the political, economic, and cultural life of cities; and try to promote them to be qualified citizens.

#### **4.3.3.4 Correctly Distinguish Management from Discrimination and Create the Safety Valve to Prevent China from Falling into the “Trap in Latin America”**

The problems including high thresholds, strict requirements, and discriminations over the peasants coming to cities have been or are being solved. Currently, on one hand, China shall further its study on the unsolved problems to find solutions and provide fair treatment for the qualified peasants as real citizens; on the other hand, China shall also strengthen the practical, scientific, and innovative management to create the safe valve to prevent China from falling into the “trap in Latin America.” Peasants can only become citizens based on certain qualifications. It is impossible and harmful for China, a country of surplus population and labors and large proportion of peasants, to change all peasants coming to cities into citizens and provide accommodation, work, and social security for them. The qualifications mainly include the comparatively stable job and incomes, comparatively fixed housing, and no crime within a certain period after they come to cities (e.g., half a year). Peasants that satisfy the above three conditions can be confirmed as the permanent population of the city and enjoy the treatment as citizens. However, if they cannot meet the three qualifications within the regulated time, they will be asked to return to their hometowns for agricultural work. To avoid China from falling into the “trap in Latin America,” the people that have no work or job and disturb the social order should not continue to stay in cities, because they may gather and form the “shantytowns” similar to the slums in Latin America. This is the fair and equal way to solve this problem. It is rational to provide half a year to let peasants integrate into urban life in terms of labors, accommodation, and incomes; and it is also reasonable to require the peasants that cannot find proper jobs and fixed houses to return to their homelands, as the western developed countries also adopt the same method. This is not discrimination, but a large city, especially an extra large city, cannot properly contain a large number of unemployed migrants. This method satisfies the demands of the urban construction and development and avoids the “trap in Latin America.” Meanwhile, this favors the self-development of these peasants flowing to cities.

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## Chapter 5

# Population and Sustainable Development

**Abstract** The sustainable development is generally proposed or explained as a development strategy or international program of action. Is there a theoretical basis for the development strategy or the program of action? If there is, what is the theoretical foundation and system? Many scholars have discussed this problem in the recent two or three decades, particularly the most recent decade, and proposed different points of view including the environmental determinism, population-oriented theory, and the growth mode transformation-centered theory. However, due to limited quantity and depth, these researches are only considered as the basis for empirical study. The study on the theory of sustainable development lags behind the practical situation and is required to deepen.

### 5.1 Theory on the People-Oriented Sustainable Development and Its Theoretical System<sup>1</sup>

The sustainable development is generally proposed or explained as a development strategy or international program of action. Is there a theoretical basis for the development strategy or the program of action? If there is, what is the theoretical foundation and system? Many scholars have discussed this problem in the recent two or three decades, particularly the most recent decade, and proposed different points of view including the environmental determinism, population-oriented theory, and the growth mode transformation-centered theory. However, due to limited quantity and depth, these researches are only considered as the basis for empirical study. The study on the theory of sustainable development lags behind the practical situation and is required to deepen.

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Based on the theoretical abstraction of the practices of sustainable development, the author believes that the human-oriented development theory more truly reflects the nature of sustainable development and constitutes the theoretical basis for sustainable development. Its basic point refers to development that aims to satisfy people's needs, including physical, psychological, communication, and cultural needs; the development shall be achieved by realizing the rational and effective allocation of resources, especially the development and utilization of human resources, and accumulating and gathering human capitals; and the basic mode for development is the coordinated development of population, resources, environment, economy, and society. The basic framework for the theoretical system of sustainable development includes the theory of all-around optimum population, the theory of the resources scarcity, the theory of ecological system, the theory of overall economic benefits, and the theory of coordinated social development.

### ***5.1.1 Satisfying the People's Needs for All-Around Development as the Aim of Development***

It is an innate desire for us to satisfy people's needs. However, along with the development of social productivity and the increasingly fierce competition after the industrial revolution, the accumulated capitals strongly reveal the essence of self-appreciation, which means that society places undue emphasis on the pursuit of the speed of appreciation and the scale of accumulation, gives priority to the maximum self-appreciation, and develops along with development itself as the aim instead of satisfying people's needs. After World War II, the socialist planned economy system of high centralism and unification was established with the Soviet Union as the model, which theoretically claimed the goal as satisfying "the growing material and cultural needs of the people" but practically led to the shortage economy and deviated from the aim of satisfying people's needs. These two ways of development both followed the principle of "economic growth=growth" but could not satisfy people's needs for all-around development and even pursued development based on the cost of other aspects. For example, the practices of converting forests or grassland to farmland and accelerating the development of pesticides and chemical fertilizers may satisfy people's temporary needs of grains and other food, but the water and soil erosion, more adverse weather, and water and land pollution will finally harm people's development of a healthy body and mind. The devastating flood in the middle and lower stream of the Yangtze River is an example of this. According to statistics, in the Yangtze River valley, the forest coverage had declined from 22 to 10 % and the proportion of the area of the water and soil erosion in the total area of the valley had increased from 20.1 to 41 % from the mid-1950s to mid-1980s, so the rainfall carried sand and joined the Yangtze River and made the river bed increasingly high. During this period, people were encouraged to reclaim the lakes to farmland. The area of lakes had reduced by more than 45 %, so the Dongting Lake lost its function of adjusting the water flow of the Yangtze River, and other lakes' role of

“natural reservoirs” has been greatly weakened. The Yangtze River had become the second Yellow River that had incurred the greatest damage throughout history [15, 16]. The profits from cutting off woods and reclaiming lakes in the four decades can never compensate the loss incurred by a flood. It was a satire that the “development” equating to “marching toward nature” had been admired in previous time. Based on past experiences and lessons, the people-oriented sustainable development focuses on people’s all-around development and avoids developing some aspects by damaging other aspects. The *Program of Action* approved in the International Conference on Population and Development held in Cairo in 1994 proposed that “human is the core of the problem of sustainable development.” In view of the basic spirit of the *Program of Action*, the “human” here refers to people’s all-around development. It means to place the people’s all-around development as the starting point and ultimate goal of development.

People’s needs for all-around development, including the physical, psychological, communication, and cultural development, can be divided into survival, entertainment, and development needs. The survival needs, as the most fundamental needs, are the conditions for population reproduction and the basis for social stability. If the overall population’s needs regarding the means of livelihood cannot be satisfied, the social order will come to chaos; and if the working age population’s needs on the means of production and industrial structure cannot be satisfied, a large number of the unemployed will adversely affect social stability and development, in addition to sustainable development. The survival needs are limited and can be easily satisfied after the economic development has reached a certain level; but people’s entertainment needs, i.e., the pursuit of a high-quality life, are unlimited and required development as the driving force, so the entertainment needs also constitute one of the needs of people’s all-around development. However, the entertainment needs shall be restricted to make sure the needs are favorable for people’s physical and psychological health and social progress. The development needs, especially the needs to develop the scientific, technical, and cultural quality of the population, are required for people’s all-around development, and the development needs are also the main method to realizing sustainable development, which will be further discussed later in the chapter.

The “people” referred to in the people’s needs for all-around development include the current generation as well as their posterity. The sustainable development requires correctly handling the relation between the development needs of different generations. The traditional development concept only considers the needs of the current generation but ignores the results incurred on future generations by the current generation’s pursuit of the needs. Another trend is revealed in some recent researches. For the sentence of “satisfying the needs of the present generation without damaging the future generations’ ability to satisfy their needs” proposed in *Our Common Future* by the United Nations Conference on Environment and Development in 1987, some explain the sentence as mainly focusing on the development of descendants and placing the needs of the current generation in second place, which metaphorically “puts the cart before the horse.” The premise for the sustainable development is development that satisfies

the all-around development needs of the current generation; the development that ignores the all-around development needs of the current generation cannot be effectively promoted. However, the development that satisfies the all-around development needs of the current generation should not prejudice the interests of the future generations or injure their ability to satisfy their needs. The traditional concept of “economic growth = development” has led to environmental deterioration and resource exhaustion and typically inclines to the current generation. The sustainable development that satisfies people’s needs for all-around development aims to change the incline; emphasizes the fair between generations, continuity, and generality; and attaches importance to the development that continues for generations.

### ***5.1.2 Human Capitals as the Main Driving Force***

The premise for sustainable development is development. What is development? According to the definition of the word, development refers to the process of things changing from the small to the big, from the simple to the complicated, and from the low level to high level. From the perspective of the resources, the development refers to the process of the material transformation of resources. Generally, economic development is reflected by direct material transformation. Social development is partly presented as the direct material transformation of resources, such as the development of education that aims to improve the population quality, which mainly relies on the increase of the investment on education and the material transformation of the increase of equipment, including teachers, classrooms, laboratories, and libraries, in the case of unchanged labor productivity in education; and some social development is presented as the indirect material transformation based on the premise of certain material transformation, such as the study on social science that often depends on the power of abstraction, but the power of abstraction requires the social practices, which is the process of the material transformation of resources. The material transformation of resources include the material transformation of natural resources such as land, forest, grassland, rivers, lakes, air, metal minerals, and nonmetal minerals, as well as the material transformation of social resources such as human capitals, knowledge, information, technologies, and management. In most cases, this combines the material transformation of both natural and social resources. The question of “Which of the two types of material transformation plays the guiding role in development?” is exactly the fundamental difference between the traditional development theory and the sustainable development theory. The traditional development theory of “economic growth = development” focuses on the material transformation of natural resources and pursues the maximum development and utilization of natural resources but results in the huge waste of resources, degrading environmental quality, and unsustainable development. Currently, many developing countries still follow the resource-driven economic



development path. Still in the stage of traditional industrialization, these countries put emphasis on natural resources, ignore the social resources, and follow the unsustainable development. On the contrary, some developed countries rely on their comparative advantages in human and technology capitals, engage in the deep processing of raw materials produced in their own country or are imported, sell and export the products after adding great added value in order to obtain more profits and natural resources, transfer some of their traditional industries to foreign countries, vigorously develop the high-new-tech industries, place the production and transmission of science and technologies (i.e., the knowledge economy) as the core of economic development, give full play to the guiding role of the material transformation of social resources, and therefore attain the rational allocation of natural and social resources. The people-oriented sustainable development pays close attention to natural resources and meanwhile accords great importance to social resources and gradually changes the natural resource-guided to social resource-guided material transformation.

The microelectronics-guided new technical revolution after World War II raised the role of science and technology in labor productivity from 30 % to the current 70–80 % and even 100 % in some high-new-tech sectors. Currently, the new technical revolution has been promoted to a higher stage, with life science as the leading subject, having developed from externalizing and materializing people's physical strength to externalizing and materializing people's intellectual strength. Based on some new breakthroughs in cloning technology, the latest achievement of bioengineering, the knowledge economy and knowledge management can decide the fate of the future economic development and guide the transition of human society into the age of intellectual tools. After having experienced the age of hand tools and machine tools, the human has ushered in the brand new age of intellectual tools, which gives priority to people's intellectual development. The increase in the investment on the population intellect and the accumulation of human resources are becoming the main driving forces for economic and social development as well as sustainable development. Some countries and regions realize economic and social development through the material transformation of natural resources, but, for a time, they suffered backward technology, financial crisis, and economic depression after rapid development and could hardly continue with development. Contrarily, some countries and regions attach importance to the material transformation of social resources; place emphasis on the accumulation and growth of human capitals, information, technologies, and capitals and therefore obtain rapid development despite their background of economic depression; show strong development stamina; and usher in a period of great development, unmatched from any other time in their history. The positive and negative practices demonstrate that the development and utilization of social resources and the accumulation and growth of capitals, mainly including human capitals, constitute the basic factors for sustainable development. In this sense, the key to sustainable development is science and technology, the basis is education, and the driving force is the human capital.

### 5.1.3 *The People-Oriented Theoretical System*

The people-oriented development concept does not only reveal that the starting point, goal, deciding factor, and the method of development are people but also reflect that people are going through every aspect of development, including the population, resource, environmental, economic, and social development, giving rise to the crosswise development of various aspects. One of the basic requirements of sustainable development is the coordination and continuity of the crosswise development of these aspects, which can only be realized by the people orientation. This requires establishing the theoretical system for the people-oriented sustainable development for the sake of the development of major aspects and the crosswise development. However, the people-oriented theory is not identical to the humanistic theory in philosophy. According to the dictionary of philosophy prepared by Rosenthal and Eugene, the humanistic theory refers to “the philosophical principle that views people mainly as the living creature in biology without regard to the specific and historical social relations.” The “people” in the people-oriented theory refers to the people that have attained unprecedented economic and social development at the turn of the century, the abstract idea of people in a specific age instead of the pure living creature without regard to the social development. Materialism in the humanistic theory is rational and beneficial. The theoretical system for sustainable development based on the people-oriented theory is composed of five theories.

#### 5.1.3.1 **The Theory of All-Around Optimum Population**

The theory of optimum population was generated in the early twentieth century. It proposed two concepts, including overpopulation and under population, during the discussions on the relation between the population scale and resources. The optimum population refers to the situation when any increase or decrease of the population size will not bring any benefit. If  $O$  represents the optimum population,  $A$  means the actual population, and  $M$  means the imbalance degree of the population quantity, the formula can be reached as below:

$$M = \frac{A - O}{O}$$

The positive value of  $M$  indicates overpopulation, the negative value indicates the under population, and  $M=0$  indicates the optimum population. The study on the optimum population has later proposed and demonstrated the economically optimum population that can create maximum economic benefits, the power optimum population that maximizes the national strength and the socially optimum population. However, the current optimum population still focuses on the research of the

population quantity and seldom involves other aspects. Along with the approach of the new technical revolution in the twenty-first century, the world birth rate will decline and finally reach zero growth. The problems on population quality, distribution, and structure will be more predominant. To adapt to the new situation, the optimum population shall not only discuss on the population quantity but also incorporate the all-around optimum population quality, structure, and other aspects. Based on the trend of the world population and China's population in the twenty-first century, the realization of the optimum population requires controlling the population size, improving population quality, giving attention to the adjustment of the age and sex structure of population and the population distribution in the urban and rural areas, and giving priority to the control when compared to the improvements and adjustments. It is difficult to formulate the goal of the optimum population upon the integration of control, improvement, and adjustment, but it is possible to set up the short-term goal for the optimum population based on the specific development process. The theory of the optimum population of the new meaning makes it reasonably possible to realize the self-development of the population and the sustainable development of the crosswise population, resource, environmental, economic, and social development.

### **5.1.3.2 Theory of the Resources Scarcity**

Since development refers to the material transformation of resources, the overall situation of resources, including natural and social resources, becomes the premise for development. The author believes that resources, especially natural resources, are meanwhile absolute and unlimited as well as relative and limited, similar with absolute truth and relative truth, though resources are, on the whole, scarce. The absolute and unlimited resources mean that, along with the constant progresses of science and technologies, people's ability to know, develop, and utilize resources will be unlimitedly improved and many new resources, even resources of higher values, will be discovered. The relative and limited resources refer to, under certain economic and technical conditions, people's ability to know, develop, and utilize resources that are limited and the resources will be exhausted at some future point. Generally, resources are scarce, as the nonrenewable resources will be exhausted and reduced in the absolute quantity and the renewal speed of the renewable resources cannot catch up with the growth of population and economy, leading to a deeper scarcity of resources. Since people are pursuing the high-quality life, the per-capita consumption of resources is unceasingly rising, so the population growth incurs a "weighted efficiency" over the resource consumption. Since China is heading into the modernization of the twenty-first century and the zero growth can only be realized after another increase of the population of 300 million in the first half century, sustainable development requires the establishment of resource awareness and places the theory of resource scarcity as the guiding theory.

### 5.1.3.3 Theory of the Ecological System

According to the modern science established upon the separation of space and time and the physical experiences-based knowledge origins, the development extends along with “decomposition” and “decompression” and therefore leads to the separation between the nature and human society. The knowledge and practices of the separation between the organic and inorganic world further encourages the human to live in an indirectly artificial environment and seldom ask whether the indirectly artificial environment complies with the law of motion of the objective world and the scientific continuity. The emerging contemporary science breaks away from the previous thinking pattern of “decomposition” and “decompression”; gives full play to the characteristics of crossing, margin, and integration; and injects the new energies to the science of the ecological system based on life science and earth science. The science of the ecological system places emphasis on the integration of human society and nature and the organic and inorganic world; outlines the life as the center of the Earth system including atmosphere, hydrosphere, lithosphere, and biosphere; and explains the existence, evolution, and development of the Earth from the perspective of ecology. Owing to the self-adjustment of the self-feedback system of nature, the ecological balance is maintained and a steady ecological system is formed in the constant energy and material transformation between producers, consumers, decomposers, and inanimate materials. When the interference from the outside world exceeds the self-adjustment ability of the ecological system, the balance will be broken, the energy and material exchange will be damaged, the balance between the living creature and the environment will be lost, and the development will be no longer sustainable. The current major outside interference comes from human society. The traditional development has resulted in the extinctions of various species and the birth of “man-made species,” which greatly attack the stability of the ecological system. The people-oriented sustainable development will review the human’s position in nature and actively and consciously return humans back to the ecological system.

### 5.1.3.4 Theory of Overall Economic Benefits

Since the Keynesianism (by J. M. Keynes) proposed to regard GNP as the most important, or the most unique, indicator to measure economic development in the 1930s, the efficiency of the expansion of the large-scale industrial economy has been largely offset by the adverse effects. The people-oriented sustainable development will not ignore the adverse effects incurred by the traditional economic development but will pay equal attention to the efficiency of enterprises and individual economy and the overall economic efficiency of society, as well as to the short-term economic efficiency and the long-term economic efficiency, in order to establish the new development concept of the overall economic efficiency of society.

### Development Concept of the Quality Efficiency

Traditional economic development places undue emphasis on the output quantity, output value, and profits mainly by the expansion of the production scale, which results in the low utilization rate of resources, serious pollution, etc. Sustainable development aims to maximize the overall economic efficiency of society and tries to minimize the resource waste and the cost to curb pollution. Therefore, the intention type expanded reproduction mainly relying on the improvement of product quality and increase of labor productivity shall be adopted instead of the traditional expanded reproduction. It is an obvious characteristic of sustainable development to place more emphasis on quality than quantity, pursue the development based on quality, and thus realize the maximum overall economic efficiency of the society.

### Development Concept of the Expansive Space Efficiency

The input–output ratio can be divided into two different types. In the limited sense, the input–output ratio refers to the ratio between the output and the invested cost of the producers; and in the broad sense, the input–output ratio refers to the ratio between the output and investment of the whole society. The traditional economic development only pays attention to the former type, while the sustainable development attaches more importance to the latter. Regarding the development indications, in addition to the GNP and GDP, sustainable development shall also incorporate the indicators that can more reflect the space efficiency in the broad sense, including the economy, society, culture, environment, health, and life quality. The adoption of these indicators will not only facilitate the scientific assessment on the ability and level of sustainable development but also exclude the effect by other factors, such as the irrational foreign exchange rate. The development concept of the space efficiency in the broad sense breaks from the narrow concept only focusing on the economic efficiency of one enterprise or region; incorporates the external efficiency including resources, environment, and social development in the assessment; and views the efficiency and development from both economic growth and the internal combination based on the development.

### Development Concept of the Long-Term Efficiency

The development concept of the overall economic efficiency in the sustainable development requires paying equal attention to the long-term efficiency, in addition to the short-term efficiency, instead of buying the short-term efficiency with the cost of long-term efficiency. The report of *Our Common Future* proposed that the development should “not damage the ability of future generations to satisfy their needs,” which considers both the generations’ population production and the relation between the short-term and long-term efficiency. It is the symbol of sustainable

development to attach more importance to the long-term efficiency compared to the traditional development. In view of this, development shall not only accumulate the economic results but also emphasize that the development will not prejudice its ability of self-development. It will be unsustainable if the development weakens people's ability. The development concept of the long-term efficiency shall place emphasis on the cultivation of the ability of sustainable development to ensure the constant emergence of the new development potentials.

### **5.1.3.5 Theory of the Coordinated Social Development**

The society refers to the summation of the productivity and relations of production and the economic base and superstructure generated in the process of the crosswise productions of materials, population, environment, and spiritual goods. The concept of the coordinated social development of the people-oriented sustainable development means to correspondingly develop the social undertakings and establish the economic base that will facilitate people's all-around development along with the changes of the productivity and relations of the production and, in addition, correspondingly change the superstructure, giving birth to the progressive ideology and advanced political and legal organizations and management systems. The coordinated social development places emphasis on combining multiple kinds of productions. More attention shall be paid to the following three aspects of coordinated social development based on the practices of sustainable development.

#### **Coordinated Development of Economy and Society**

As proved by the development of developed countries and some developing countries, it is undesirable to develop the economy first and then solve the social problems of the population, unemployment, pollution, and poverty after the economic development. It makes it more difficult to solve the social problems and meanwhile violate the goal to satisfy people's all-around development. Moreover, the social problems having reached a certain level will inhibit economic development. The sustainable development advocates developing the economy and fairly solving social problems at the same time, in order to realize the coordinated and synchronous development of economy and society.

#### **Coordinated Development of the Primary, Secondary, and Tertiary Industry**

The industrial structure reflects the different stages of economic development and the social progresses. The proportion of the output value of the tertiary industry, including the medical care, public health, education, scientific research, environmental protection, food and beverage, and service industry, among the total GDP, reflects the level and coordination of economic and social development. Theoretically, the countries of

different development stages shall develop their proportion of the tertiary industry to a proper proportion. A too high proportion may result in the mire of the welfare state and inhibit the development, while too low a proportion may impede technical progress and reform and also inhibit development.

### Both Internal and External Coordinated Development

Along with economic development and great progresses of science and technologies, the relations between states and regions, and their influence on each other, have been unprecedentedly strengthened. Currently, the sustainable development has permeated the people and been published at international conventions. In addition to the economic, population, and environmental development, the political, cultural, and legal conditions of a society also draw great attention from their surroundings and other countries. By now, all countries are building their images of pursuing the interactive and balanced development based on the integration of population, resources, environmental, economic, and social development. The coordination between internal and external development will facilitate the states to build their favorable images and practically promote the sustainable development in their country and all over the world.

## 5.2 On the Sustainable Development of Population and National Economy<sup>2</sup>

Spare no effort to seek a way to achieve sustainable development with population, economy, society, environment, and resources that meets the needs of the present without compromising the ability of future generations to meet their needs. – *China's Agenda 21*, 1994

After three stages of great social divisions of labors, the industrial revolution and the current new technical revolution, sustainable development has been proposed as the most important topic at the turn of the century in both the United Nations Conference on Environment and Development held in June 1992 and the Congress on Population and Development in September 1994. Regarding the explanation on “sustainable development,” some put particular emphasis on environment, some on economy, some on society, and some on population. However, more and more consensus have been gradually reached along with the deepening discussion. The definition in the report of *Our Common Future* proposed by the Congress on Environment and Development in 1987 is comparatively authorized, stating that the sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their needs. Therefore, it requires restoring the growth, improving the growth quality, eliminating poverty,

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maintaining a proper population, satisfying people's basic needs for survival, enhancing the resource foundation, and adjusting technologies to protect the environment and seeking for the economic, political, social, technical, management, and international systems that adapt to sustainable development. Regardless of the definition and explanation, population and economy are the most important two factors beyond dispute, and the sustainable development of the population and national economy is the basis for the all-around sustainable development. It is crucial for China, the country of the largest population and rapid economic development in the world, to seek for the sustainable development of the population and national economy, in order to realize the strategic goal in the *China's Agenda 21*. Based on practices, the sustainable development of the population and national economy is mainly reflected at the following aspects.

### ***5.2.1 Sustainable Development of the Total Population and Means of Livelihood***

As an abstract concept, the population is the unity of producers and consumers. However, it is conditional to be a producer but unconditional to be a consumer. Under any social form, the production shall provide sufficient means of subsistence for all residents and maintain a certain ratio between the needs of the total population and the means of livelihood. This ratio firstly depends on the ratio between the growth rates of the population and the national economy. The indicator on the measurement of the population variation is fixed, but many indicators can be adopted to measure the growth of the national economy, including GNP, GDP, and national income, which can all be compared to the growth rate of the population. However, an economic growth rate much higher than the population growth rate does not necessarily mean a harmonious relation between the two. It depends on the investment coefficient of the fixed assets. Currently, China's investment coefficient of fixed assets maintains between 3.5 and 4.0, which can be considered as the multiplying factor of the economic growth compared to the population growth, i.e., the growth rate based on residents' original living standards. For example, in 1993 when the growth rate of China's population was 1.15 %, the actual growth of the national income and population investment ratio should have been much higher than the figure to ensure the continuing improvement of residents' living standard. Therefore, attention shall also be paid to the original base and level for the comparison between the growth rates of the population and economy. In a country of coordinated development between population and economy, the lower growth rate of the national income and the higher growth rate of the population may also constitute a proper ratio. On the contrary, in developing countries of the population inappropriate for the economy, the economic growth rate that is higher than the population growth rate in a short term cannot change the situation of overpopulation.



Secondly, importance shall also be given to the physical substance of the growth of the means of livelihood, especially the basic means of livelihood. With grains as an example, China produced 387.28 million tons of grains in 1983 and produced 456.488 million tons of grains in 1993, with a growth of 17.9 %; but in the same period, the population had grown by 15.1 %, so the per-capita share of grains only increased from 376 to 385 kg (only by 2.4 %).<sup>3</sup> Due to the large population of China, taking up 21.5 % of the total world population, and the small area of arable land, taking up about 7.0 % of the world, realizing the sustainable development of the population and grains is still extremely difficult. It is similar with the growth of other means of livelihood. Based on the basic trend of the contradiction between overpopulation and insufficient means of livelihood, the sustainable development shall combine the control of the population size and the vigorous development of the production of the means of livelihood.

### ***5.2.2 Sustainable Development of the Working Age Population and the Means of Production***

In demography, the population is divided into three groups: the youngster population aged between 0 and 14, the adult or working age population aged between 15 and 59 (or 64 in some cases), and the elderly population aged above 60 or 65. In normal circumstances, the adult or working age population occupies the largest proportion, and its absolute quantity is larger than the sum of the youngster and elderly populations. Meanwhile, the adult or working age population shall play the most important role among the three groups. People are producers and consumers at the same time. However, a man is not born a producer but can only grow up to be a labor and producer after their development through the infant and child stage. The youngster population aged 0–14 is only the consumer or the potential producer at the most. After people become old, they become purely consumers. Though everyone will go through the three stages, the different roles of different age groups shall be pointed out from the perspective of economic and social development. Only the working age population is the producer and consumer at the same time and the one taking charge of social wealth. Therefore, the working age population plays a special, key, and dominating role in the total population.

From the perspective of the economic process, the four links (production, exchange, distribution, and consumption) are mutually linked with one another and are restricted. Priority shall be given to production, which dominates the economic process. Production determines the quantity, method, and even the essence of the products for exchange, distribution, and consumption. Therefore, the variation of

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<sup>3</sup>Data source: *China Statistical Yearbook 1994*, China Statistical Publishing House, 1994, P59 and P345.

the ratio between the working age population and the means of livelihood, as well as the corresponding employment, are the core problems for the sustainable development of the population and the national economy.

The working age population consists of the working population, student population, unemployed population, and passive population, with the labors as the main body. Regarding the basic relation between the labors involved in material production and the fixed assets for production purposes, the number of labors ( $V$ ) is directly proportional to fixed assets ( $C$ ) and inversely proportional to the technical equipment for labors ( $K$ ). Suppose that the quantity of employment of labors at the base year as  $V_0$ . Then the quantity of employment of labors in the  $n$ th year is

$$V_n = V_0 \cdot \left( \frac{1+C}{1+K} \right)^n$$

Obviously, three different situations may appear in this formula:

1. If  $1+C > 1+K$ , i.e., the growth rate of the fixed assets exceeds the speed of the improvement of the technical equipment for labors, and the employment of labors will increase correspondingly.
2. If  $1+C = 1+K$ , i.e., the growth rate of the fixed assets equals the speed of the improvement of the technical equipment for labors, and then the employment of labors remains unchanged.
3. If  $1+C < 1+K$ , i.e., the growth rate of the fixed assets falls behind the speed of the improvement of the technical equipment for labors, and then the employment of labors will reduce accordingly.

Generally, the relation between the fixed assets and employment of the material production departments will go through the three stages, from the increase to stagnation and later to decline of the labors directly involved in agricultural and industrial material production. Two problems lie in this relation of China. Firstly, despite the significant development in 45 years, the needs of the newly increased employed population in cities and towns are difficult to satisfy due to the weak foundation of original industrial fixed assets; and the contradiction between the large number of rural labors and the small area of arable land is prominent, and the current surplus agricultural labors may be between 120 and 150 million.<sup>4</sup> The second is the contradiction between the increase of the number of employed and the improvement of the labor productivity. Within the 26 years between 1953 and 1978, China had seen a growth in the industrial labor productivity by more than 10 % for 11 years, a growth below 10 % for 7 years, and a negative growth for 8 years, including 5 years when the labor productivity had declined by more than 10 %. The agricultural labor productivity had stagnated for a long time and saw a negative growth for many years. This situation has reduced since reform and opening up. After reform and opening

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<sup>4</sup>Domestic and foreign estimations on China's surplus agricultural labors vary from 100 to 200 million. *China Agenda 21* estimates it as more than 100 million, which will reach about 200 million by 2000.

up, the industrial labor productivity has only declined for 2 years, the social labor productivity has seen a constant improvement, and the agricultural conditions are also favorable. However, the growth rates of both the industrial and agricultural labor productivity have been very slow. In addition to factors including the economic foundation, structure, and system, an important reason for this is that the population has exerted great pressure on productivity, since the number of social labors increased, on average, about 8 million each year from the 1950s to 1970s and has increased 14 million each year in the 1980s and the first 3 years of the 1990s. As estimated, the number of the working age population and its proportion will continue to grow until about 2010.

For the sustainable development of the population and the national economy, dialectical analysis shall be conducted on the increase of the absolute quantity and proportion of the working age population in the next one or two decades. On one hand, labors play the active factor in productivity despite the advanced technologies, so the increase of the proportion of the working age population indicates the lower proportion of the young and elderly population and lighter social burden, which constitutes the “golden age” of the age structure that is favorable for economic development. China shall seize this opportunity and facilitate development. For instance, the “Four Dragons” in Asia have made the best of human resources in their countries or regions in their economic takeoff. On the other hand, the employment pressure will be further increased upon the current surplus population and labors, leading to a more acute contradiction. In addition to the control of birth and the control of the increase in the working age population in the future, the solution to this problem also requires the transfer of the strategic emphasis of employment, mainly including the following aspects.

Firstly, transfer the planting-centered employment to employment in diversified economies. Owing to the rapid development of the market economy in recent years, most surplus agricultural labors join the “tide of peasant workers,” receiving mixed responses from all circles of society. The author believes that the emergence of the “tide of peasant workers” is inevitable. The academic world shares the similar analysis. However, no fundamental solution has been given to overcome the blindness of the “tide.” Population urbanization that transfers the rural population to urban areas is an important approach, but not the only way to solve the surplus agricultural labors. In China, the area of the arable land only takes up approximately 10 % of the land, compared to 33 % of grassland, 59 % of plateau and mountain areas, and 2 % of fresh water. The land composition is of great disparity to the current employment structure of agriculture. In order to solve the surplus labors in agriculture, especially in the planting sector, it is necessary to vigorously develop forestry, animal husbandry, sideline, and fishery and divert part of the “tide of peasant workers” in this way.

Secondly, facilitate the transfer of the strategic emphasis from agriculture-centered to industry and commerce-centered employment. It is the main channel for the population urbanization in China and the main method to solve the surplus agricultural labors to develop township enterprises and realize rural urbanization. Large and medium cities will definitely expand in the process, but they will occupy

a low proportion in the transfer of the surplus agricultural labors. The traditional policy of the population urbanization has been shocked by the practices since reform and opening up, but its basic point of “mainly developing small cities, properly developing medium cities, and restricting the scale of large cities” has proven to comply with the current national conditions of China. It shall be carried on and combined with the reform and opening up as well as the comprehensive development of the region.

Finally, transfer the strategic emphasis from the sector of the industrial and agricultural material production to the nonmaterial production and from the improvement of employment rate to the improvement of the employment efficiency. Before reform and opening up, due to the undue emphasis on the high employment rate and the increasing pressure of the employment of the newly increase population mainly in the industrial and agricultural material production, the labor productivity was very slow and therefore adversely affected economic growth. This situation has changed after reform and opening up, the third industry has developed rapidly, and the structure of the primary, secondary, and tertiary industry has changed from 1.2:2.1:1 in 1978 to 0.8:1.9:1 in 1993,<sup>5</sup> which facilitates the improvement of the industrial and agricultural labor productivity. It is important for the sustainable development of the population and national economy to adhere to solving the employment of the newly increased labors and surplus labors mainly in the tertiary industry and realizing the comparatively full employment based on the improving employment efficiency.

### ***5.2.3 Sustainable Development of the Population Quality and Economic and Technical Progresses***

The discussion on the sustainable development of the population and the national economy shall incorporate both the quantity and quality of the population, including the physical and cultural quality. The development of productivity varies in different historical stages and shows different requirements on the population quantity and quality. Generally, the social forms before capitalism (including the handicraft industry period) are featured with the same basic characteristics, the manual work as the main method, so in those days, the population quantity played an important role in productivity. After the industrial revolution occurred in the latter half of the eighteenth century, the manual work was gradually replaced by machines, and the development of productivity started to mainly rely on the improvement of the labor productivity instead of the increase of the labor quantity; therefore, the population quality, including the technical and cultural quality of labors, shows greater significance. According to estimations, 20 % of the improvements of the labor productivity in the early twentieth century were contributed by the scientific and technical progresses, and the proportion was increased to 30 %

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<sup>5</sup>Data source: *China Statistical Yearbook 1994*, P26.

by the mid-twentieth century and to 70–80 % in the current times, even 100 % in some sectors. Science and technologies increasingly show their power in transformation to the practical productivity.

One argument is that, in productivity, people are not as important as they once were owing to the fact that scientific and technical progresses and advanced machinery and equipment are sufficient. The author views this argument as false or, at least, incomplete. The status and role of machinery and equipment have been significantly promoted in the modern production, but it will not prejudice the status and role of people. On the contrary, though the population quantity is not as important as before, the status and role of the population quality have improved. The development and application of people's intellect has become the powerful lever for the development of modern economy. For example, in Japan, the materialized capital had increased six times from 1905 to 1960, and the investment on education had grown 22 times in this period, when the national income had significantly increased by 10 times despite the only 70 % growth of the quantity of labors. Japan had made the senior middle school education universal, realized the growth of the number of university graduates and postgraduates by several times, cultivated a great number of scientific and technical talents and skilled workers, introduced many foreign advanced technologies and creatively developed the domestic technologies based on them, established a series of emerging industries, and eliminated its scientific and technical gap of 30 years with European and American countries and became an economic, scientific, and technical power within 20 years.

China has spared no effort to improve people's health and their educational, scientific, and cultural level in 45 years and has already attained great performance. Currently, the life expectancy of the population is about 70 years, and the cultural quality index of the population, which means the average educational years received by each person, had rapidly grown from 4.65 in 1987 to 5.18 in 1990 with a growth of 0.53.<sup>6</sup> However, China's physical and cultural quality of the population still falls far behind countries of the higher level. People's physical quality is closely related to the per-capita share of food. In 1993, China's per-capita share of grains only amounted to 1/4 of the United States, 1/3 of France, and 2/3 of Germany; and the per-capita share of pork, beef, and mutton equaled more than 1/3 of these developed countries. At the same time, the low per-capita share costs a high proportion of the residents' consumption expenditure. The current Engel's coefficient is 52.86 % in urban areas and 56.81 % in rural areas, which reflects that Chinese people currently only have adequate food and clothing. In addition, China suffers from a low level of health and medical care, a weak birth monitoring system, and a high rate of babies born with mental and physical deficiency incurred by congenital disorders, such as

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<sup>6</sup>Refer to Tian Xueyuan [17]. The formula is 
$$C = \frac{Uy_1 + Hy_2 + My_3 + Ly_4 + Iy_5}{U + H + M + L + I} \cdot U, H, M, L,$$

and  $I$  here respectively refer to the population having received education of university, high school, middle school, illiterate, and semi-illiterate, while  $y_1, y_2, y_3, y_4,$  and  $y_5$  respectively refer to the educational years they have received, which are respectively 16, 11, 8, 4, and 0.25 year in this formula.

children of parents with mental deficiencies. An even wider gap can be seen in the cultural quality. The indicators, including the proportion of the population with a higher educational background, are inferior to developed countries and even some developing countries. Particularly, 181.61 million people are still currently illiterate or semi-illiterate. This was out of proportion to the goal of sustainable development. It is still an arduous task to vigorously improve the population quality, especially the cultural quality.

### ***5.2.4 Sustainable Development of the Aging Population and Old-Age Security***

In addition to the population quantity and quality, the population structure shall also be considered in the discussion on the sustainable development of the population and the national economy, especially the aging trend of the age structure. In 1870, the population aged above 60 in France took up 12 % of the total population of the country; and after 42 years, Sweden also reached this level. The trend of the aging population was then revealed, at the turning point of the nineteenth and twentieth centuries. As estimated by the United Nations, the elderly population aged above 65 will occupy 6.0 % of the total world population in 1994, which will grow to 6.8 % in 2000 and 9.7 % in 2025.<sup>7</sup> China's age structure of the population will see more rapid variation and more rapid and serious aging trend. According to estimations, the proportion of the elderly population aged above 65 will increase from 5.6 % in 1990 to 6.9 % in 2000, 10.6 % in 2020, and the peak of 17.4 % in 2040 and then start a slight decline.<sup>8</sup> The population aging will bring about a series of problems in economic, cultural, and social development. The primary problem is establishing an old-age security system that accords to the requirements of the aging process and sustainable development. The author has written several articles advocating to establish the old-age security system integrated with social support, family support, and self-support by actively developing social support, continuing to advocate children's support, and properly organizing the employment of the aged for self-support. This system shall be emphasized for the sake of sustainable development, but it should vary in different regions and different time periods.

The active development of social support is the mainstay for the old-age security system of sustainable development, the supporting project for the national economic system reform, and the foundation works to reduce the old-age security efficiency of marginal children and control population growth. However, the social security for the aged shall not be universal in all of China, due to the differences in economic development, the time to enter the elderly-type age structure, and the degree of

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<sup>7</sup> Data source: United Nations [14].

<sup>8</sup> Data source: "The Population and Employment of China in 2000", *Collectives of Tian Xueyuan*, China Economic Publishing House, 1991, P285–286.

aging among different regions. In China, the economic development and level and the degree of population aging increase from the northwest to southeast, leading to three obviously different levels in the border area, inland, and coastal areas. Therefore, the complete old-age security system shall be firstly established by the reform of the old-age security system in the coastal areas in southeast China, since the area enjoys a more advanced economy and will firstly meet the aging population. Plans shall be made for the central region and the system will be established later in the northwestern areas. However, the aging population in the underdeveloped economy, which makes it more difficult to actively develop social support, will challenge all these areas. According to estimations, about 2 million people will retire every year in the 1990s, and the figure will grow to 3 million between 2000 and 2030. The national finance cannot afford the current pension payment if it continues. The total pension will exceed the "alert line," 25 % of the total wages, after more than 10 years. The way out lies in reform. The government, working units, and individuals shall bear a reasonable part of the pension and gradually establish the pension reserves. In collectively owned and individual enterprises, the pension reserve system shall also be established by enterprises and labors to ensure the support to the aged.

In addition to the social support, two other important aspects to upholding the all-around social old-age security system is to continue the children's support and organize the reemployment of the elderly for self-support. As mentioned above, the rapid population aging and comparatively backward economic development in China result in the narrow coverage and low level of the social old-age security, so the other two methods shall be adopted as the supplementary measures. China has the tradition of respecting, loving, and supporting the aged, so the children's support still accounts for the large proportion. According to the national sampled investigation, 1/4 of the aged in cities and towns relied on children's support, compared to as high as 67.5 % in villages. The children's support has been weakened, and the families are becoming smaller under the commodity and market economy. The children's support shall continue to be emphasized by the orientation of public opinions and legal protection. The reemployment of the elderly population only accounts for less than 20 % of the economic sources for the aged in cities, but exceeds 30 % in rural areas, which means that 1/3 of the rural population still relies on themselves and constitutes the main support to the old-age security.<sup>9</sup> A problem arises here that the reemployment of some of the aged will exert more pressure on employment, in addition to the surplus population and labors in China. However, as proved by practices, some jobs are more suitable for the physical conditions, temperament, and psychology of the aged, such as the guard and janitor of the governmental organs and enterprises, storage safekeeper, cleaner, and serviceman. The reemployment of the elderly population, mainly in the tertiary industry, is an integral part for the sustainable old-age security.

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<sup>9</sup>Data source: "Data on the Sampled Investigation on the Elderly Population Aged Above 60 in China in 1987", *Chinese Journal of Population Sciences*, supplementary issue (1), 1988, P264-267.

### ***5.2.5 Sustainable Development of the Population Urbanization and Rationalization of the Industrial Structure***

Population urbanization refers to growing concentration of the population in urban areas. This is the current trend of the world population development. According to the estimation of the United Nations, in 1994, the proportion of the urban population was 42 % in the world, 72 % in developed countries, and 34 % in developing countries, and this proportion is estimated to rise to 50 % by the end of the twentieth century and continue to grow afterward. The same trend exists in China. From the perspective of sustainable development, the core of the population urbanization is to transfer the surplus rural labors to industry and commerce in cities and towns, which shall accord to the adjustment and rationalization of the industrial structure.

Generally, the surplus agricultural labors shall be mostly transferred to the tertiary industry, instead of the material production sectors. Within agriculture, the surplus labors shall firstly transfer from the farming industry to forestry, animal husbandry, sideline, and fishery. However, the internal structure of the industry will also be involved when some agricultural labors coming into cities and towns and township enterprises develop rapidly. The socialist industrialization in China had criticized the capitalist industrialization that develops light industry before heavy industry and adopted the principle of giving priority to heavy industry. Therefore, agriculture supports all burdens to support industrialization. After the 2nd Five-Year Plan, when the industrialization had developed to a certain level, the agriculture gradually found it more difficult to maintain support, and industrialization was forced to slow down and could only be facilitated after the restoration and development of agriculture. This situation has improved considerably after reform and opening up. China no longer pays excessive attention to the heavy industry and has made great achievements in the adjustment of the internal industrial structure, but China still needs to facilitate development of the light industry that can satisfy residents living needs in order to realize the sustainable development of the overall population and the means of livelihood. Therefore, the surplus agricultural labors, no matter those entering the township enterprises or cities, should mainly be transferred to the light industry, especially the light industry mainly on processing of the agricultural sideline products, instead of heavy industry.

### ***5.2.6 Sustainable Development of the Regional Distribution of the Population and the Layout of Productive Forces***

As demonstrated by the history of social development, both overpopulation and under population are unfavorable for economic development. In the period of traditional industrialization when a large number of labors are in need, the industrial revolution and the population growth took off synchronously; in modern times, economic development and the postindustrialization propose an unprecedented high requirement on the labor quality, especially the scientific and cultural quality.



Society and families pay a high-quality cost of children, and developed regions have completed, or will complete, the transfer from the investment on the quantity cost to quality cost, which led to the steady decline of the birth rate. Based on China's dual economic structure transforming from the traditional agriculture to modern industry, different regions show different transformation degrees and vary greatly in the requirements on the quantity and quality of population and labors. Regarding the population distribution, the division line is still the Aihui–Tengchong line. Its northwestern area takes up approximately 52 % of the total land area and accommodates only 5 % of the total population; meanwhile, its southeastern area takes up 48 % of the land and 95 % of the total population. This distribution reflects the natural geographical condition and the economic development of these areas but, in reverse, exerts great influence on the economic development of these areas. For example, the 12 coastal provinces or municipalities, including Beijing, Tianjin, Shanghai, Liaoning, Hebei, Shandong, Jiangsu, Zhejiang, Fujian, Guangdong, Guangxi, and Hainan, take up about 14 % of the total land area, but encompass 41 % of the population, with the population density much higher than inland areas and remote provinces and regions. Currently, coastal areas enjoy a lower birth rate and obviously higher indicators of the population quality, including the proportion of the adult and elderly population, proportion of the urban population, cultural quality index, and life expectancy. This proves that coastal areas have a higher population and working age population, higher population quality, and comparatively rational structure, which are favorable for the reform and opening up and the development of the export-oriented economy. Moreover, the favorable original infrastructure, convenient traffic, and strong economic and technical forces will enable the coastal areas to embrace a more rapid economic development. Therefore, priority shall be given to this area in the layout of the productive forces. The population conditions are weaker in the central area, with a prominent contradiction of the large number of population and labors and comparatively low population quality. It is favorable to make a rational choice among the labor-intensive, technology-intensive, and capital-intensive industries according to specific conditions. Despite the large area, sparse population, and abundant resources, the northwestern area also suffers the talent shortage, inconvenient traffic, and weak infrastructure. Another, more improved way of the sustainable development shall be found to combine the population and economic conditions of this area. China shall prudentially handle the large-scale population flow and absorb the positive and negative experiences for the adjustment of the regional distribution of the population and the layout of the productive forces.

### 5.3 Taking the Road of Modern Civilized Development<sup>10</sup>

In order to embark on a road of civilized development with developed production, affluent life, and a sound ecological environment, three changes shall be promoted in terms of theories and practices.

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<sup>10</sup>This article was published on *the People's Daily*, June 16 2004.

The first is the change in the development concept. Human beings generally develop production to satisfy people's needs. However, the development of production, guided by the traditional development concept, may easily deviate from this goal. GDP has been regarded as the major, or even the only, assessment indicator for the economic development for a long time, when it was common to place undue emphasis on the GDP growth and evaluate the development of countries with GDP growth. Under this background, many people place the GDP growth itself as the goal of development and wrongly equal GDP growth to development and mistake GDP growth as the center. Even the assessment on the performance of cadres relies on the GDP growth rate of his or her responsible region or department. Therefore, some deficiencies are covered by rapid GDP growth, including the irrational structure of the three industries and employment; the increasing gap between the development of urban and rural areas, industry, and agriculture and the east and west; unfair distribution; false report of the "performance" of the GDP growth; and comparatively backward development of social undertakings. In order to pursue the rapid GDP growth, the projects that predatorily exploit resources and seriously pollute the environment are also launched, leading to the acute contradictions of the population, resources, and environment. The people-oriented scientific concept of development advocates embarking on the road of civilized development with developed production, affluent life, and a sound ecological environment and clarifies the relation among the production, life, and ecology as well as the ultimate goal of development. The ultimate goal is to satisfy people's needs for all-around development, including the physical, psychological, cultural, and communication needs. The needs on materials shall not be satisfied by damaging the needs in other aspects, and the GDP growth shall not be pursued by damaging the environment and health, because it may prejudice the ability of all-around development of society and the sustainable development. After the problem of food and clothing has been basically solved, people's increasing cultural needs become more and more important. Moreover, if people's cultural needs can be satisfied, the population quality will constantly grow, which will facilitate China's advantage in human resources, transferring to the advantage in human capitals and therefore promote the constant, rapid, coordinated, and healthy development of economy and all-around social progresses.

The second is the change of the economic growth mode. The development placing excessive emphasis on the GDP growth generally adopts extensive expansion of reproduction, with the investment on fixed assets as the main driving force. This situation is related to the current irrational structure of the three industries, the irrational internal structure of three industries, and slow improvement of labor productivity. Importance shall be attached to the driving forces and measures of development in order to optimize the structure, improve the efficiency, and transfer the traditional growth method of high investment, high consumption, low output, and low efficiency to the growth mode of low investment, low consumption, high output, and high efficiency. Capital accumulations are necessary for any production development and economic growth. However, the accumulations show different focuses of the total social capitals in different historical stages, including natural capitals,

output (production) capitals, human capitals, and social capitals. The agricultural society and earlier societies mainly depended on natural capitals; the traditional industrial society mainly relies on output capitals; and the modern (postindustrialized) society mainly relies on human capitals and the social capitals related to human capitals. Human capitals mean the summation of the values of people's knowledge, skills, experiences, and health. At present, the world sees the more rapid development of information-based economy, economic globalization, and knowledge economy, so the competition in this age is mainly reflected as the competition of talents and human capitals. Under these circumstances, the development of production and the change of the economic growth method mainly rely on the accumulation of human capitals and the increase of the social capitals including information, management, system, and market-oriented degree that are closely related to human capitals. China shall require a faster speed, greater efficiency, and more rational structure of human and social capitals and constantly promote the intensive expansion of reproduction.

The third is the change of the relation between human and nature. The more than four million years since the beginning of the human race constitute a history of the advancement of humans and retreatment of nature along with the development of production. In the first year A.D., the world had a population of about 200 million, which has currently grown to 6.2 billion, a growth of 30 times. At the same time, China's population has increased from 60 million to 1.3 billion, with a growth of more than 20 times. Correspondingly, the world suffers a worsening ecological environment, extinction of many plant and animal species, and a sharp decline of mineral resources, which resulted from the direct increase of demands and consumptions owing to the increase of population as well as people's unlimited desire of the high life quality. Therefore, people demand more and more from natural resources. However, the quantity of nonrenewable resources is fixed and decreases after people make use of them; the renewable resources need certain conditions and time for renewal and can hardly catch up with the step of the expansion of population reproduction and the consumption increase; and the social resources are scarce, and the system and management level require certain costs for improvements and certain time for reform. For the twenty-first century, more and more come to realize that human beings and nature are not competitors but shall coordinate harmoniously with one another. As the country of the largest population and land area, China does not face an optimistic ecological environment. Though the great achievements in population control have drawn worldwide attention, China's population can only realize zero growth by 2030; it is a difficult task to treat the waste water, waste gas, waste residues and noise, and the contradiction between the accelerated construction and the pollution control; and people's consumption demands show a "weighted" effect along with the production development and higher living standards. In consideration of the pressures in the future, it is necessary to incorporate the "sound ecological environment" in the road of the civilized development; this represents the vital interests of the current generation, relates to the long-term interests of the latter generations, and specifically reflects the implementation of the scientific concept of development and the strategy of sustainable development.

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# Chapter 6

## The Strategy of Population Development and Population Policies

### 6.1 On the Strategy of Population Development<sup>1</sup>

The discussion on the strategy of population development has deepened in recent years. What is the strategy of population development? According to the author's understanding, the strategy of population development refers to the confirmation of the goal, focus, countermeasures, and methods of the population development in a long period; from the macroscopic level based on the analysis of the conditions and limiting factors for the population development; and which studies on the long-term, overall, and fundamental problems concerned with the overall population development.

#### 6.1.1 Changes and Developmental Trend of China Population

According to the above understanding of the strategy of population development, the primary task is to discover the status and condition of population development. As is well known, China has a vast territory, abundant resources, and a large population. However, China's population actually grew very slowly throughout history but only sharply grew as the result of two periods of great forward leaps. The first period was from 1685 to 1849 under the governance of Emperors Kangxi, Yongzheng, Qianlong, Jiaqing, and Daoguang, when the total population of the country grew from 102 million to 413 million, having quadrupled over 164 years. The second leap forward was the recent 36 years since the foundation of the People's Republic of China, when the population had doubled, from 542 million in 1949 to 1.045 billion in 1985. The history of population development, especially the period after the foundation of New China, generates the current population status and main characteristics of China, as summarized below.

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<sup>1</sup> *Collectives of Tian Xueyuan*, China Economic Publishing House, 1991, P24–38.

Firstly, China has a large population size. The mainland of China has a population of 1.045 billion, and Taiwan has a population of 190 million. China's population equals 1.064 billion in total, accounting for 22 % of the total world population, while the population of mainland China accounts for 21.5 % of the total world population. China is the only country with a population above one billion.

Secondly, China is comparatively young in the age composition. According to the population census in 1982, China's population aged between 0 and 14 took up 33.5 %, compared to 61.6 % of the population aged 15–64, and 4.9 % of the population aged above 65. Currently, the proportion of the youngster population may have slightly declined and the elderly population may have slightly grown, but China is still comparatively young in age composition and has a strong growth potential, as China is transforming from a young age structure to the adult-based age structure or the primary stage of the adult-based age structure.

Thirdly, the proportion of the urban population is large. According to the *China Statistical Yearbook*, the rural population occupied 64.3 % in 1985, while the urban population took up 35.6 %. China was far behind the average world level and developed countries, where the urban population, respectively, took up 43 % and 72 %.

Fourthly, China suffers from high population density and irrational population distribution. The population density of China reached 109 people per square kilometers in 1985, 73 higher than and three times the world level of 36 people per km<sup>2</sup>. Different regions vary greatly in population density. The density was above 500 in Shanghai, Tianjin, Beijing, etc.; above 400 in Jiangsu, Shandong, Henan, etc.; and less than 10 in Tibet, Qinghai, and Xinjiang. The population cannot be equally distributed due to the differences in economic development, natural environment, and nation composition, but the population distribution is not rational in view of the great difference between the population densities in the northwest and southeast.

Fifthly, the population quality is low. The population quality had greatly improved since the foundation of New China. In 1981, China's infant mortality rate had declined to 34.7‰ and the life expectancy had been improved to 67.9 years, much higher than the general level of developing countries but still far behind the developed countries, as developed countries enjoyed an infant mortality of 20‰ and a life expectancy of 72 years. Regarding the cultural quality, China's proportion of the population with an education background above the college level was lower than developed countries and even lower than some developing countries. China still has about 230 million illiterates or semi-illiterates, which does not meet the requirements of the modernization construction.

The strategy of population development shall be discussed based on China's basic status and main characteristics of population, the practices of the socialist modernization construction, and the requirements of socialism with Chinese characteristics. The author believes that the overall strategy shall be controlling the population quantity, improving the population quality, and adjusting the population structure. The emphasis shall be placed on quantity control, and the quality control will facilitate the improvement of the population quality and the adjustment of the age structure, urban and rural structure, and regional structure of the population. Also, importance shall be attached to the influence of the improvement of the

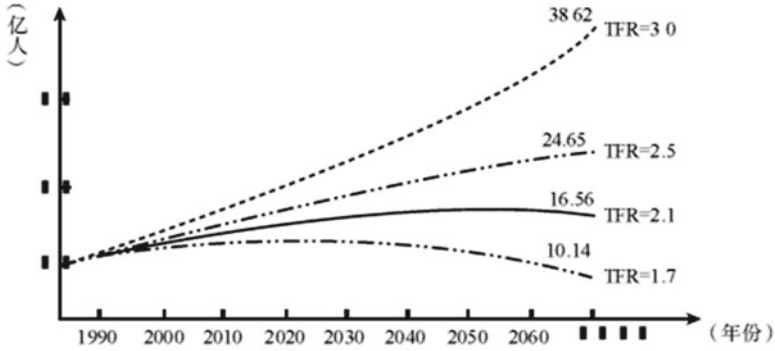


图 1 未来人口发展趋势

亿人 100 million people; TFR Total fertility rate; 年份 Year

Fig. 6.1 Future trend of population development

population quality on the quantity control and structure adjustment, as well as the role of the adjustment of the population structure in quantity control and quality improvement. The “control, improvement, and adjustment” are closely related to and complement each other.

The control of the population quantity is key. As mentioned above, China is featured with a young age structure of the population and a strong growth potential. See the trend of the population growth based on different fertility rates in Fig. 6.1.

As shown in Fig. 6.1, if the TFR maintains at 3.0, the national population will constantly grow, to 1.453 billion by 2000 and 3.862 billion by 2070; if the TFR maintains at 2.5, the population also will constantly grow, to 1.363 billion by 2000 and 2.465 billion by 2070; if the TFR maintains at 2.1, the total population will constantly grow and stop growth by 2050, reaching 1.303 billion by 2000 and 1.656 billion by 2070; and if the TFR maintains at 1.7, the total population will grow for another four decades, reaching 1.226 billion by 2000 and 1.338 billion by 2026, and then the population will start to decline, reaching 1.014 billion by 2070. As decided by the young age structure of China’s population, the population will significantly grow if the TFR maintains at 3.0 or 2.5, will grow more than 60 years if the TFR keeps at 2.1, and will even grow for 40 years when the TFR keeps at 1.7. Therefore, the control of the population growth shall be considered as the primary task.

Regarding the relation among the control of the population quantity, improvement of the population quality, and adjustment of the population structure, the quantity control is the key that can promote quality improvement and structure adjustment. Due to the large population, rapid population growth, and great consumption, as well as the low productivity, the national income each year is limited after the deduction of consumption by the large population. Despite the high accumulation rate, the limited amount leads to the small investment on the improvement of the population quality, including science, education, and public

health. If the number of births reduces by 10 % each year, i.e., the growth rate drops from 1.92 to 1.73 %, the savings from the reduction of the consumption can be utilized in education and will double the current expenditure on investment and grow seven times in the investment on the infrastructure of education. From the perspectives of individuals and families, the population control and low birth rate will release parents from heavy housework and enable them to put more time and spirit into learning science and technologies. Meanwhile, the lighter family burden makes it easier for children to attend school and receive more education. It can be seen that the control of the population growth will facilitate the improvement of the quality of the adults and their children.

The population control is also the only method to adjust the age structure of population. It is impossible to change the age structure of an existing population group with external forces, but can only control the birth rate and the number of births, adjust the number of infants under the age of 1 each year, and thus gradually change the age structure. The control of population quantity is also meaningful for the change of the regional structure and urban and rural structure of the population. China's regional distribution of population is very unbalanced and irrational. According to the population census in 1982 and 1964, the population density in the 11 coastal provinces and municipalities had increased by 37.8 %, compared to the growth by 50.9 % in 18 inland provinces and municipalities, and the growth by 63.9 % in Tibet, Xinjiang, Inner Mongolia, Qinghai, Gansu, and Ningxia. This reflected the change of the regional structure of the population. In addition to the mechanical change and the small population flowing from coastal to inland areas to support the construction of the inland area, the higher growth rate of the inland population than the coastal population and the higher growth rate of the minorities than the Hans also contribute to the change. The urban and rural structure of population shows a similar trend. China's slow urbanization resulted from the strict policy control over urban population, as well as the much higher growth rate of the rural population than the urban population since 1964. Therefore, priority shall be given to the control of the population quantity, since the population quantity itself is the essential problem and it also plays an important role in improving the population quality, deciding the age structure of the population, and adjusting the regional structure and urban and rural structure of population. The control of the population quantity is the main contradiction among the "control, improvement, and adjustment" and the key step that shall be primarily settled in order to solve the population problem in China.

However, it is not enough to only control the quantity. Though the control of population quantity will facilitate the improvement of the population quality, the quantity control does not equal to the quality improvement; and though the quantity control can directly change the age structure of the population, it plays a limited role in adjusting the regional structure and urban and rural structure of the population. A process of transition is needed between the control and the improvement and adjustment. The control of the population quantity will reduce consumption and increase accumulation. Under the certain amount of the national income and the certain ratio between the accumulation and consumption, the reduction of



consumption is the increase of accumulation. However, it is the competent department of economy that decides how many of the accumulations will be invested on agriculture, industry, and construction of the national defense and how many of the accumulations will be contributed to the investment on the population quality, including science, education, culture, and public health, according to the needs of the development of the national economy. As mentioned above, the population growth rate in coastal areas is generally lower than the inland areas, which contributes to the change of the irrational regional structure of population. However, the expected goal can hardly be reached in a few centuries if China relies on the natural growth rate to change the irrational regional structure. It is the same with the urban and rural structure. The control of the natural growth rate of the rural population can facilitate the population urbanization, but if China only relies on this method to develop urbanization, the urbanization can only be realized when the natural growth rate of the rural population drops below the growth rate of urban population, which is near impossible in the foreseeable future. Actually, superior to the natural change of the population, the most important factor that contributes to the change of the regional structure and the urban and rural structure of population is the mechanical change of the population. The quantity control, quality improvement, and structural adjustment mutually condition and promote each other. It is generally known that the improvement of the population quality, especially the cultural quality, often leads to the significant decline of the birth rate. China's natural growth rate of the urban population is now much lower than the rural population, and it can be foreseen that the proper adjustment of the ratio of the urban and rural population will facilitate the decline of the birth rate. This indicates that "improvement" and "adjustment" are not completely passive but also influence the quantity control of the population. However, due to the influence of the quantity control on improvement and adjustment is even greater, "control" plays a more important role. Therefore, a comprehensive analysis shall be conducted on the solution to the population problem in China. The implementation of the principle of "control, improvement, and adjustment" is a problem involving not only the control of the population quantity or the department of the family planning but also the whole Party and nation. It requires all departments related to population to closely coordinate and cooperate with each other, formulating the economic policies that are favorable for the population control and developing the science, education, culture, and public health for the one billion-person population to facilitate the improvement of the population quality of the whole nation and the adjustment of the irrational population structure.

### ***6.1.2 Strong Control of Population Growth***

The control of the population quantity is key. But how is it to be controlled? What is the goal of the control? In view of the practical population, economic, and cultural status of China and the influence of the population on modernization, the

**Table 6.1** Low-level estimation (1985–2070)

Year	Total population (billion people)	Total fertility rate	Number of births (million people)	Birth rate (%)	Number of deaths (million people)	Death rate (%)	Population growth (million people)	Growth rate (%)
1985	1.046	1.80	17.14	16.3	7.05	6.7	10.04	0.96
1990	1.099	1.60	18.25	16.5	7.31	6.6	10.88	0.99
1995	1.156	1.50	18.68	16.1	7.77	6.7	10.87	0.94
2000	1.204	1.50	17.03	14.1	8.19	6.8	8.79	0.73
2010	1.286	2.10	18.25	14.4	10.61	8.2	9.97	0.62
2020	1.348	2.10	18.33	13.5	13.33	9.8	4.99	0.37
2030	1.374	2.10	17.70	12.8	17.07	12.4	0.55	0.04
2070	1.305	2.10	18.38	14.0	18.18	13.9	0.13	0.01

**Table 6.2** Medium-level estimation (1985–2070)

Year	Total population (billion people)	Total fertility rate	Number of births (million people)	Birth rate (%)	Number of deaths (million people)	Death rate (%)	Population growth (million people)	Growth rate (%)
1985	1.050	2.10	20.03	19.0	7.16	6.8	12.81	1.22
1990	1.119	1.90	21.42	19.1	7.41	6.6	13.88	1.24
1995	1.191	1.75	21.60	18.1	7.86	6.6	13.79	1.15
2000	1.248	1.60	18.20	14.5	8.23	6.6	9.86	0.79
2010	1.338	2.10	19.98	14.9	10.67	7.9	9.31	0.70
2020	1.425	2.10	21.01	14.7	13.44	9.4	6.60	0.53
2030	1.467	2.10	18.81	12.8	17.19	11.7	1.61	0.11
2070	1.439	2.10	20.61	14.3	20.24	14.1	0.29	0.02

**Table 6.3** High-level estimation (1985–2070)

Year	Total population (billion people)	Total fertility rate	Number of births (million people)	Birth rate (%)	Number of deaths (million people)	Death rate (%)	Population growth (million people)	Growth rate (%)
1985	1.056	2.50	23.76	22.5	7.29	6.9	16.37	1.56
1990	1.136	2.10	23.51	20.6	7.48	6.5	16.02	1.47
1995	1.216	1.90	23.33	19.1	7.91	6.5	15.32	1.26
2000	1.280	1.70	19.36	15.1	8.26	6.5	11.01	0.86
2010	1.379	2.10	21.25	15.4	10.72	7.8	10.48	0.76
2020	1.483	2.10	22.80	15.3	13.51	9.1	9.19	0.61
2030	1.537	2.10	19.80	12.8	17.28	11.2	2.36	0.16
2070	1.540	2.10	22.23	14.4	21.75	14.1	0.46	0.03

low-, medium-, and high-level programs are proposed. The three programs propose the total population, births, deaths, natural growth, etc. in 1985, 1990, 1995, 2000, 2030, and 2070. See Tables 6.1, 6.2, and 6.3 below.

Based on the comparison of the three tables, only Table 6.1 meets the requirement of controlling the national population within 1.2 billion by 2000. Then the population

cannot exceed 1.1 billion by 1990 and cannot exceed 1.19 billion by 1995. To realize the above requirements, the number of births shall be reduced from more than 19 million in 1983 to 18 million in 1990 and 1995 and 17 million in 2000; and the birth rate shall be lowered from 18.6‰ in 1983 to 16.5‰ in 1990 and 14.1‰ in 2000. The natural population growth shall be maintained around 10 million between 1985 and 1995 and maintained around 9 million between 1995 and 2000. The natural growth rate shall be controlled within 1.0 % between 1985 and 1995 and controlled within 0.8 % between 1995 and 2000. For the overall trend of variation, the decline of the number of births, birth rate, natural population growth, and natural growth rate will not decline very fast. If great results can be achieved through the family planning, the TFR can be lowered to about 1.80 in 1985, 1.60 in 1990, and 1.50 in 1995, and the goal of controlling the national population around 1.2 billion by 2000 can be realized. However, it must be noted that it is very difficult to achieve the population goal of the 1.2 billion mainly due to the following causes.

Firstly, the fertility rate has declined to a low level in the previous decade. The natural growth rate has dropped from 2.2 % in 1972 to 1.2 % in 1983, nearly by half, which is rarely seen in the history of the world population development. It is important for the growth rate to continue the decline since it has already dropped to the low level among developing countries. The natural growth rate of population has declined below 1.0 % in some areas and even realized zero growth in some regions, leaving little room for further decline.

Secondly, the surge of births from the mid-1960s to the early 1970s has begun a potential surge of births around 1995, when more than 12 million women will come to the age of childbearing each year. Therefore, though the birth rate has been significantly lowered, the number of births each year and the net population growth may not decline and may even grow, leading to the constant growth of the total population.

Thirdly, in China's backward urban and rural population structure, the rural population accounts for a large proportion and the fertility rate of the rural population is far higher than the urban population. For example, the natural growth rate of the population was 1.13 % in cities in 1981, while the growth rate in counties was 1.50 %, 1/3 higher than the cities. It is also notable that the role of families has changed after the reform of the rural system, as families' function of production has been restored. The situation lays the foundation for the families of a larger scale and stimulates people's initiatives for births. In addition, the low cultural quality of population and high fertility rate often appear in remote regions and minority districts, where the birth rate can hardly decline by a large margin. This situation shall be taken into consideration as an adverse factor for the population control.

For long-term development, the confirmation of the strategic goal of the population shall consider both the sharp growth of population based on the high fertility rate and the population aging incurred by the low fertility rate. The author believes that the fertility rate shall not be lower than the low-level estimation in order to prevent serious population aging and shall not be higher than the high-level estimation to control the population growth. However, the fertility rate does not only rely on the above two basic requirements of the population but also depends on the

economy, culture, public health, and policies. The following countermeasures can be adopted to control the national population under 1.2 billion by the end of the twentieth century and avoid serious population aging.

Firstly, every couple is advocated to give birth to only one child and to carry out the basic state policy of family planning. As shown by the population estimation, the only child accounts for a larger proportion in the low-level estimation that can control the population within 1.2 billion by 2000, so the goal can only be realized by vigorously advocating the only-child policy. The only child shall also account for a certain proportion in the medium-level estimation. Even in the high-level estimation, the total fertility rate shall decline below the replacement level between 1995 and 2000 and some women of childbearing age shall give birth to only one child. Therefore, the only-child policy shall be vigorously promoted to realize the above programs, especially the low- and medium-level estimation. However, the strategic and guiding idea shall clarify that the only-child policy is not a permanent policy. The policy aims to control the fertility rate of one generation, so it is mainly adopted in the twentieth century. Therefore, it shall be clarified that if both parties of the couple come from only-child families, they can give birth to two children. This policy will win popular support and release or avoid the social problems incurred by the long-term implementation of the only-child policy. Uniformity shall not be imposed on the implementation of the policy, but specific situations will need specific treatment. At the same time, three children and multiple births shall be prevented. The local regulations on the birth policy shall be carefully carried out.

Secondly, apply more measures to control the population growth. The family planning, as the primary countermeasure to realize the goal of the population control by the end of the twentieth century, shall be conscientiously implemented. However, many factors will influence the fertility rate, so China shall create conditions for the decline of the fertility rate in various ways during reform and opening up.

The cultural background of the population is closely related to the number of births. Generally, people with higher educational background place more emphasis on the quality of children instead of the quantity, but people with a lower educational background attach more importance to the quantity. Therefore, people of different educational backgrounds show quite different fertility rates. For example, in 1982, among women at the age of 40, each illiterate gave birth to 4.7 children, compared to 4.1 children for each woman of a primary school-level educational background, 3.4 children for each woman with a junior middle school educational background, 2.7 for senior middle school, and 2.0 for university. Among women at the age of 50, each illiterate gave birth to 5.9 children, compared to 4.8 children for primary school, 3.7 for junior middle school, 2.8 for senior middle school, and 2.1 for university. It can be generally seen that the educational level is inversely proportional to the fertility rate. In this way, the improvement of the educational level of women will lower the fertility rate. Therefore, China shall properly increase the investment on population intelligence and vigorously develop education, which will improve the cultural quality of the population and meanwhile lower the fertility rate.

As mentioned above, China's current fertility rates in rural and urban areas vary greatly. Therefore, the decision to properly relax limitations on peasants moving to cities, especially the small towns nearby, will promote the development of urban industry and commerce, facilitate the development of rural economy, and meanwhile practically lower the total fertility rate. In addition, the development of the medical and healthcare based on the economic development and healthy pregnancy and scientific nurture will directly or indirectly facilitate the decline of the fertility rate. This means that although the family planning is the key to the realization of the goal of population control by the end of the twentieth century, other reliable measures can also be adopted to lower the fertility rate, including the improvement of the cultural quality of the population, adjustment of the urban and rural structure, and development of the medical and healthcare systems.

Thirdly, the support to the elderly population shall be properly settled. The old-age pension system has been employed in the enterprises owned by the whole people and state cadres, which has effectively solved the problem of the support to the elderly population. However, the pension system is not been applied to the vast rural areas and most collective-owned enterprises, so the economic status contributes to the important role of the family support, in addition to the cause of the traditional concept. This is also the fundamental reason why some families adhere to giving birth to two, or even more, children. Long-term plans shall be made in order to fundamentally solve this problem. On one hand, the coverage of the social security shall be expanded and the strong, collective-owned units shall actively adopt the old-age pension system; and on the other hand, the pension system cannot be greatly expanded due to the low productivity or can be completely afforded by the government and enterprises, so the government, collectives, families, and individuals' initiatives shall be stimulated to solve the old-age support from various aspects. China can learn from foreign countries on how the employees submit part of their incomes to retirement funds since the commencement of their work. Meanwhile, legal and propaganda methods can be applied to reaffirm children's duty to support the elderly and guarantee the sense of security of the aged.

### ***6.1.3 Implementing the Strategy of Integrating Controls, Enhancements and Adjustments of Population***

As mentioned above, though the control of the population quantity is the key, the improvement of the population quality and the adjustment of the structure shall also be incorporated in the all-around strategy for the population development.

The population quality refers to the physical and ideological and cultural quality, while its indicator system needs further studies. The author believes that the indicators shall include the health condition, life expectancy, knowledge, intelligence, technique, education and morality, etc. The physical quality is the basis of the population quality. In old China, people's physical quality was very poor, reflected by the high crude death rate of the population (around 30‰), the high infant mortality rate, and short

life expectancy (35 years in rural areas and 40 in cities). After the foundation of New China, along with the development of the national economy, improvement of people's livelihood, and enhancement of health and medical care, the physical quality of the whole population has significantly improved. However, since China's productivity is still low and China has only realized the sufficient supply of food and clothing and can only arrive at the well-off stage by the end of the twentieth century, China's nutrition level is still low; the number of people borne per doctor and the number of patients per hospital bed is still large, which is several times that of the developed countries and adversely affect people's physical quality, despite the great development of the health and medical care; marriages between blood relatives still exist in some regions; and although infectious diseases have remained under control, the damages of hereditary diseases and congenital malformations have become more prominent. Among the causes of death, the proportion of the congenital malformation has increased, and meanwhile, the rate of the low intelligence of children is high. A healthy pregnancy and scientific nurture is proposed as a strategy to improve the population quality. A healthy pregnancy has aroused worldwide attention after World War II. Japan had enforced the *Eugenic Protection Law* since 1948; some European countries established the birth defect monitoring networks; and the United States set up genetic centers in many states. Currently, researches have been widely conducted on fetal sex appraisal, prenatal diagnosis of the chromosome diseases, determination of the open neural tube defects, environmental teratogen, etc., and some of them have been utilized in clinical application. Great breakthroughs have been made in the researches on vitro fertilization, nuclear transplant, genetic engineering, and "test-tube babies," which have unveiled secrets of human life, created new theories and practices for the birth of excellent individuals, and enabled humans to usher in a new age of healthy pregnancy. The healthy pregnancy and scientific nurture have become the strategic issue related to the development and prosperity of Chinese nations. The better births shall be regarded as an integral part of the solution to China's population problem jointly with the low birth rate.

The ideological and cultural quality of the population, as one of the standing points of the population development strategy, is closely related to the success of the construction of socialist material civilization and spiritual civilization, as well as modernization. After the foundation of New China, the cultural quality of the population has seen a considerable improvement but is still far behind developed countries and even far behind developing countries in terms of the quantity of the graduates from, or students, in universities. Currently, China still has more than 200 million illiterates or semi-illiterates, which does not accord to socialist modernization. To improve the ideological and cultural quality of the population, priority shall be given to the investment on people's intelligence and listed as the development focus, together with science and education, in order to attain rapid development. For a long time, China has paid too much attention to material resources, but not enough attention to human resources, so the knowledge and intellectual have been despised. This mistake was corrected by the Third Plenary Session of the Eleventh Central Committee; since then the development of the intelligence has received much attention and the investment on science and

education has been significantly and rapidly increased. This is a strategic turning point. However, owing to the large population and insufficient financial strength, the enterprises, collectives, and individuals shall also be encouraged to invest in intelligence, in addition to the governmental investment. Secondly, the improvement of the cultural quality shall focus on the improvement and popularization at the same time, against China's low proportion of the population with an educational level above the junior college level and the 200 million illiterates or semi-illiterates. The four modernizations require a large talent team with professional technologies, so the modernization construction cannot positively progress without a solution to the 200 million illiterates or semi-illiterates.

The adjustment of the population structure mainly directs against the age and sex structure of the population, as well as the urban and rural structure and regional distribution structure of the population. The latter two structures are not the population structures themselves, but the manifestations of the population structures in economic and social development. Therefore, only the adjustment of the age structure is discussed here.

The sharp decline of the birth rate and natural growth rate since the 1970s has led to the transfer from the young-type to the adult-type age structure of the population. Based on the comparison of the population censuses in 1964 and 1982, the proportion of the youngster population aged between 0 and 14 had dropped from 40.4 to 33.6 %, and the proportion of the elderly population aged above 65 had grown from 3.5 to 4.9 %. The elderly population aged above 65 currently takes up about 5.2 % and has pushed China into the primary stage of the adult-type age structure. More importance shall be attached to the population aging in the future development of the age structure. As determined by the current age structure of the population, population aging will be accelerated in the next five or six decades. According to the medium-level estimation, the elderly population aged above 65 will increase from 50 million in 1982 to 100 million by 2010, 200 million by 2030, and the peak of 260 million by 2040, which is 200 million more than the current elderly population. Correspondingly, the proportion of the elderly population aged above 65 will grow from 4.9 % in 1982 to 6.9 % in 2000, 7.9 % in 2010, 10.6 % in 2020, 13.5 % in 2030, and 17.4 % in 2040. Based on the estimation of the Division of Population, Department of Economic and Social Affairs of the United Nations, the current proportion of the elderly population aged above 65 in the world is approximately 6 %, while the proportions in developing countries and developed countries are, respectively, 4 and 12 %; the total proportion will grow to 6.9 % in 2000, while the proportions in developing countries and developed countries, respectively, grow to 5.1 and 14.3 %; and the proportion will grow to 10.4 % in 2025, while the proportions in developing countries and developed countries, respectively, rise to 8.4 and 21.3 %.<sup>2</sup> It can be seen that China's population is experiencing a more rapid trend of population aging compared to the world average level and that of developed countries. Practical assessments shall be made on the various problems that may be incurred by population aging.

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<sup>2</sup>United Nations [10].

One problem that may be incurred by the population aging lies in the insufficient labors or the shortage of the labor resources due to the low fertility rate and reduction of the number of births. For instance, some Western and Northern European countries with a high aging level are suffering from a short supply of labors and have to rely on imported labors from foreign countries. In China, the surplus quantity and rapid growth of the population and labors and the employment have been a difficult problem for a long time. China's current working age population aged between 15 and 64 amounts to approximately 650 million people and the social labors amount to about 460 million, which equal to the sum of the labors in all developed countries. However, China's GNP is still far behind the developed countries. This illustrates that modernization does not propose the requirement on the increase of the labor supply. Moreover, after the upgrading of the technological composition, a certain amount of labors are transferred from industry and agriculture, especially agriculture. The development of the production mainly depends on the improvement of the labor productivity. Based on the current young age structure of the population, the working age population aged between 15 and 64 will see a significant growth. According to the medium-level estimation, the working age population will increase to 860 million by 2000, 980 million by 2020, and 930 million by 2040 when the population aging will become serious. It can be foreseen that the working age population will remain above the current level in the next half century and China will not suffer the labor shortage.

The second problem that may be incurred by the population aging is the heavier social burden and the support to the elderly. The dependency ratio, i.e., the ratio of the population aged between 0 and 14, adding the population aged above 65 to the population aged between 15 and 64, will decline from 0.62 in 1982 to 0.45 in 2000, remain unchanged until about 2020, and slightly increase afterwards, to 0.58 by 2040, according to the medium-level estimation. The dependency ratio will be lower than the current level for several decades. This means that the number of the young and aged borne by each working age person is smaller in the next half century and the social burden will be lighter.

This situation does not necessarily indicate that no problem will be incurred by the population aging. On the contrary, the rapid growth of the comparative and absolute number of the elderly population leads to several problems in the support, medical care, activities, and entertainment of the elderly. With an economy of a developing country, China has a large population similar to the developed countries. The support to the elderly population is the primary problem. At present, only 30 % of the aged receive the retirement pension. Against the significant growth of the elderly population in the future, on one hand, China shall popularize the pension system and enable more elderly to enjoy the social insurance; and on the other hand, the support of the aged shall still largely rely on the children's support and personal savings due to the limited financial strength of the country. In view of this, the aging shall be controlled within a certain degree. China shall spare no effort to control the birth rate and meanwhile pay attention to the variation of the age structure of population, in order to effectively control the population growth and prevent serious population aging.



## 6.2 Attach Great Importance to the Gender Crisis<sup>3</sup>

As acknowledged by the entire world, China has made great achievements in the control of population growth since the 1970s and has reduced the number of births by more than 300 million. However, some new problems have appeared, especially the population aging and rise of the sex ratio at birth. The former problem has started to draw considerable attention, so the central government has made the decision to promote the work on the elderly. Insufficient importance has been given to the latter problem. Firstly, the studies on the current level of the sex ratio at birth, the seriousness of the problem, and the in-depth causes of the problem have not obtained clear results. Secondly, though concerned departments have done a great deal of work, including the propaganda and education on the equality of men and women and the administrative prohibition on the determination of the fetal sex, little success have been obtained. The sex ratio has seen a growth instead of a decline.

Calculated based on data provided by the population census in 2000, the sex ratio at birth between 1990 and 2000 was, respectively, 111, 114, 115, 115, 117, 118, 119, 120, 122, 123, and 118. The ratio even reaches the peak of 123.6 in 2001, subsequently drawing great attention.

The sex ratio at birth refers to the ratio between the male babies and female babies in a certain period (1 year in most cases) and is reflected by the number of female babies against every 100 male babies. Generally, the ratio is  $105 \pm 2$ , i.e., between 103 and 107, as determined by the general laws of creatures. The deviation from the “constant value” will bring about the imbalance of the sex ratio for different age groups and the sex ratio of the total population, which will further incur difficult problems in marriage, families, and social order. According to the National Bureau of Statistics and data from the fifth population census, China’s sex ratio at birth significantly grew in the 1990s and is now 11 higher than the normal value. Between 1991 and 1999, the male aged between 0 and 8 years equaled 78.046 million and the female equaled 66.268 million. The male is 11.778 million more than the female. The sex ratio had also actually grown in the 1980s, despite by a small margin. Among the population aged between 9 and 18 years between 1981 and 1990, the male was 9.454 million more than the female. In total, among the population aged between 9 and 18 years in 1999, the male accounted for 192.425 million and the female accounted for 171.193 million, with the male 21.232 million more than the female. The build-up effect of the rise of the sex ratio in two decades warns China against the “gender crisis.”

Some hold the opinion that the rise of the sex ratio can be solved by the marriage of the male and female in a bigger age gap. How big should the gap be? The Marriage Law provides the 2-year gap between the minimum ages of the man and woman. However, as mentioned above, the male population aged between 0 and 18 years is 21 million more than the female, which equals to the total population of the female in

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<sup>3</sup>This article was originally published on the *Bulletin – Information Report* of the Chinese Academy of Social Sciences, 29th issue 2001.

three age groups. What makes the problem more serious is that the gap between the marriage age of the man and woman will be further widened if the trend of the rise of sex ratio cannot be effectively controlled. Shall the man's marriage age be raised or the woman's marriage age be lowered? This measure cannot fundamentally solve the problem. The primary task is to conduct an in-depth study on the causes contributing to the rise of the sex ratio and make it clear that whether the situation is related to the birth policies, such as the rural family with only one daughter being allowed to give birth to one more child and multiple births commonly seen in poor areas. Since it is difficult to prevent the fetal sex determination through B-scan ultrasounds, the fundamental strategy, including the adjustment of some birth policies, shall be proposed.

### **6.3 Three-Step Development: Rational Choice for China's Strategy of Population Development<sup>4</sup>**

Before the discussion on the strategy of population development, its definition shall be clarified. The strategy refers to the plan and tactics to guide the war situation as a whole; the population refers to the total number of people in a certain region within a certain period; and the development refers to gradually progress into a larger, more complex, or more advanced state. The strategy of population development means the plan and tactics for the variation and development of the total population in a certain region within a certain period, from the long-term, macroscopic, and overall perspective.

#### **6.3.1 Macro Thinking**

As a developing country with the largest population in the world, China mainly suffers from surplus population and labors. Fundamentally, China's strategy of population development aims to change the situation and promote the sustainable development of the population, economy, society, resources, and environment. The emphasis shall be placed on the vigorous control of the population, improvement of the population quality, and adjustment of the population structure. In view of this, the long-term and overall strategy of population development can be divided into three steps: (1) lower the high birth rate to under the replacement level and realize the transfer of the population reproduction from high birth rate, low death rate, and high growth to low birth rate, low death rate, and low growth; (2) continue to lower the birth rate until the zero growth, and meanwhile place emphasis on the improvement of the population quality and rational adjustment of the structure;

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<sup>4</sup>This article is an integral part of the report on the major achievements of the national fund in social science. See in Tian Xueyuan [14], P22–25, P94–118. This article was originally published in Dongyue Tribune, 10th issue 2010.

(3) since the population will continue to decrease after the zero growth due to the inertia of the population, the optimum population shall be chosen according to economic and social development and the resources and environment at that time. The optimum population shall be optimum not only for the quantity but also for the population quality and age and sex structure.

Regarding the above “three-step” strategic goal for population development, the first step has been reached by the mid-1990s, when the fertility rate has been lowered under the replacement level and the transfer of the population reproduction has been completed. The second step has currently lasted for 10 years and is estimated to be attained in the 2030s. The third step can only be started after the realization of the zero growth, so the only action to take now is to predict the population variation and development trend afterwards in order to lay the foundation for the realization of the all-around optimum population. Therefore, the current strategy of the population development shall adhere to the goal of the zero growth of population and thus create the conditions for the realization of the all-around optimum population in terms of the population quantity, quality, and structure.

In order to make sure the strategy of the population development can function as the program of action to guide the future population variation, the strategy shall be planned based on both macro thinking and practical situation, including the current population status and characteristics. The population status and characteristics in the first half of the twenty-first century can be summarized as the successive advent of “five population peaks.”

Firstly, the peak of the total population will arrive around 2030. In demography, the main basis to assess the population momentum of a country or a region is the age structure of the population of that country or region, which can be divided into the young type (growing type), adult type (steady type), and old type (reducing type). The constant decline of the fertility rate over three decades has led to a reduction of population by approximately 300 million and effectively postponed the date of the 5 billion populations of the world by 2 years and the date of the 6 billion populations by 3 years. It has fundamentally transferred from the young-type to the adult-type and from the adult-type to the old-age-type age structure of the population and significantly weakened the population momentum and growth inertia. Based on the comparison between 1970 and 2000, the proportion of the youngster population aged between 0 and 14 in China dropped from 39.7 to 22.9 %, the proportion of the adult population aged 15–64 has increased from 56.0 to 70.1 %, the proportion of the elderly population aged above 65 has risen from 4.3 to 7.0 %, and the median age has grown from 19.7 to 30.0, which symbolizes that China's age structure has stepped into the old type. The total fertility rate (TFR) has dropped from 6.0 to 1.72 in this period, indicating the sharp reduction of the population momentum. Based on the data from the population census of China in 2000 and the feedback by the 1.81 % unreported population of different age groups, the medium-level estimation shows that China's population will realize zero growth after it reaches 1.465 billion population by 2030,<sup>5</sup> which is 100 million fewer and much earlier than previous estimations.

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<sup>5</sup>Tian Xueyuan [15].

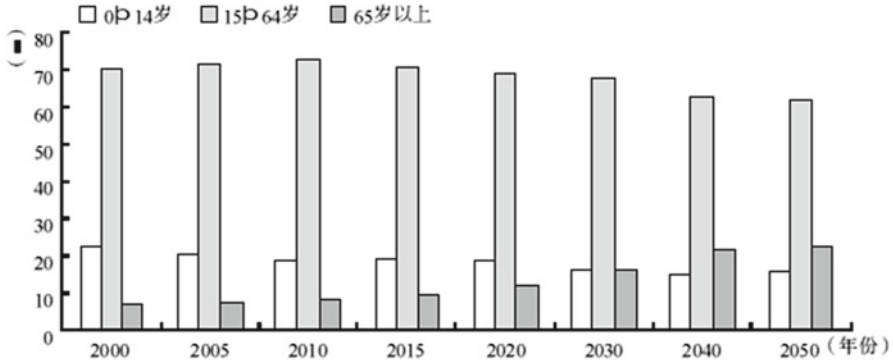


图1 2000—2050年中位预测人口年龄结构变动

0-14岁 Age of 0-14; 15-64岁 Age of 15-64; 65岁以上 Age above 65; 年份 Year

Fig. 6.2 Variation of the age structure of population between 2000 and 2050 according to the medium-level estimation

Secondly, the working age population will reach a peak after more than 10 years. The working age population aged between 15 and 64 has seen a significant rise since the 1980s. According to the estimation, the absolute quantity of the working age population will increase from 644 million in 1980 and 867 million in 2000 to the peak of 1 billion by 2017, respectively, with a growth rate of 55.28 and 15.34%. The quantity will then decline to 989 million by 2030 and 862 million by 2050, equaling to the level at the beginning of the twenty-first century. The proportion of the working age population will increase from 64.47% in 1980 and 68.70% in 2000 to the peak of 72.30% in 2009, respectively, with a growth rate of 7.9 and 3.6%. Then the proportion will begin to decline and drop to 68.97% by 2020, similar to the level in 2000, to 67.36% by 2030, similar to the level in the early 1990s, and drop to 61.29% by 2050, similar to the level in the 1960s and 1970s. See the variation of the working age population and the age structure of the total population according to the medium-level estimation in Fig. 6.2.

Thirdly, the peak of population aging will arrive in the mid-twenty-first century. Most developing countries regard those aged above 60 as part of the elderly population, while developed countries mostly adopt the standard of the age of 65. In view of the constant extension of the life span, economic development, and social progress, the standard of the age of 65 has been adopted in China. According to the medium-level estimation, the elderly population aged above 65 in China will increase from 87 million in 2000 to 116 million by 2010, 174 million by 2020, 238 million by 2030, and 323 million by 2050, respectively, with a growth rate of 33.33%, 100.00%, 173.56%, and 271.26% compared to 2010. Between 2000 and 2030, the average growth rate of the elderly population will reach 3.41%, compared to 0.51% of the total population; and between 2030 and 2050, the average growth rate of the elderly

population will reach 1.54 %, compared to -0.21 %. The difference in the growth rates of the elderly population and the total population will directly result in the increase of the proportion of the elderly population. As shown in Fig. 6.2, the proportion of the elderly population aged above 65 will increase from 7.00 % in 2000 to 7.85 % by 2005, 8.50 % by 2010, 12.02 % by 2020, and 22.97 % by 2050. Though it is still 2.93 % lower than 25.9 % (the proportion of the elderly population in developed countries in 2050), it is still 7.07 and 8.67 % higher than the average level of the world and developed countries, where the proportion of the elderly population is, respectively, 15.9 and 14.3 %.<sup>6</sup>

Fourthly, the peak of the floating population is approaching. The floating population had already equaled to 2 or 3 million at the beginning of the reform and opening up. According to the population census in 2000, the floating population with unconformity between the current residence and registered household residence reached 144.39 million, including 117.32 million floating between or within provinces. Among the floating population, 78.6 % transferred to cities and towns and 21.4 % to villages. It can be seen that the rural population floating into urban areas constitute the main body of the floating population.<sup>7</sup> Along with the acceleration of population urbanization, the first decade in the twenty-first century will witness the peak growth of the floating population. Currently, approximately 150 million rural populations come to cities and towns and about 50 million peasants are working in township enterprises, so a total of 200 million floating population from rural areas are working or doing businesses in cities and towns. After the proportion of the urban population reaches 50 % in 2015, the floating population generated mainly by the transfer of the surplus agricultural labors will see a decline.

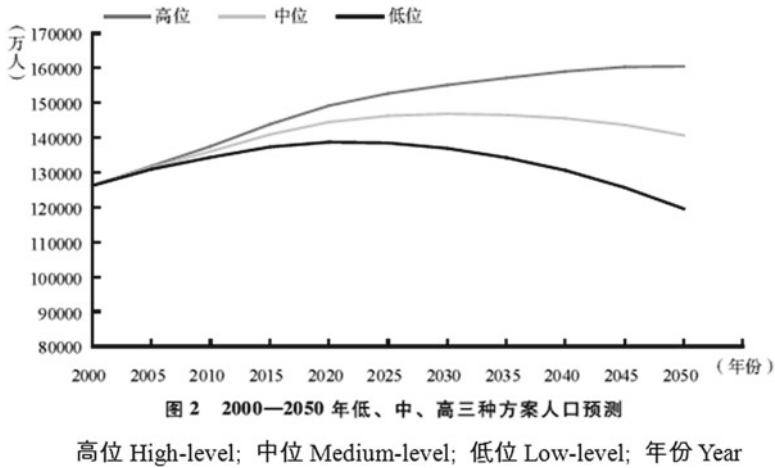
Fifthly, the sex ratio at birth will reach a new peak. The sex ratio at birth refers to the ratio between the male babies and female babies in a certain period (1 year in most cases) and is reflected by the number of female babies against every 100 male babies. Generally, the ratio is between 103 and 107. China's sex ratio has constantly risen since the 1980s and saw even more rapid growth in the 1990s. According to the fifth population census and the data from the sampled investigations in recent years, the sex ratio between 1990 and 2000 was, respectively, 111, 114, 115, 115, 117, 118, 119, 120, 122, 123, and 118.<sup>8</sup> Currently, the ratio is approximately 120, much higher than the world level.

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<sup>6</sup>Data source: United Nations [9].

<sup>7</sup>Data source: the Census Office of the State Council and the Department of Population, Social, Science and Technology Statistics of the National Bureau of Statistics of China, *2010 Population Census of China*, P726, China Statistical Publishing House, 2002.

<sup>8</sup>Data source: the Census Office of the State Council and the Department of Population, Social, Science and Technology Statistics of the National Bureau of Statistics of China, *2010 Population Census of China*, P726, China Statistical Publishing House, 2002.



**Fig. 6.3** Low-, medium-, and high-level program for the population estimation between 2000 and 2050

### 6.3.2 Selection of the Path

Studies on the strategy for the population development can be conducted from two levels: firstly, the study on the strategy based on coordinated self-development of the population in terms of the population quantity, quality, and structure; secondly, combine the variation and development of the population with the social and economic development and seek for the strategy of sustainable development of the population and resources, environment, economy, and society. The first-level strategy of the population development is discussed as below.

The low-, medium-, and high-level programs are selected among various population estimations here. See the trend of the population variation in Fig. 6.3.

As mentioned above, the zero growth of population is the goal in the second step of the strategy of population development, which can be considered as the “landing point” of the strategy of population development. The landing methods can be divided into the “hard,” “soft,” and “slow landing.”

The low-level program for the estimation is considered the “hard landing,” because the low-level estimation predicts a fertility rate lower than the current level and does not take into account the influence of the constant decline of the fertility rate on the population structure and economic and social development. The total fertility rate (TFR) is actually divided into the urban and rural areas, but the average comprehensive TFR is 1.65 between 2000 and 2005, 1.56 between 2005 and 2010, 1.44 between 2010 and 2020, and 1.32 between 2020 and 2050. The total population of China is 1.343 billion in 2010 and 1.386 billion in 2020, reaching the peak of 1.387 billion in 2021, then starts to decline, drops to 1.367 billion in 2030, 1.302 billion in 2040, and 1.192 billion in 2050. If the TFR remains at 1.32, the total population of the country will drop to 556 million in 2100.

In the medium-level estimation of the “soft landing,” the fertility rate is more stable and will slightly recover and maintain a level slightly higher than the current level. The comprehensive TFR of urban and rural areas is 1.75 between 2000 and 2005, 1.80 between 2005 and 2010, 1.83 between 2010 and 2020, and 1.80 between 2020 and 2050. The total population is 1.360 billion in 2010 and 1.444 billion in 2020, reaching the peak of 1.465 billion in 2030, and then slowly declines to 1.451 billion in 2040 and 1.402 billion in 2050. If the TFR remains at 1.80, the total population will drop to 1.024 billion by 2100.

In the high-level estimation of the “slow landing,” the fertility rate will gradually recover and maintain stability after having reached the replacement level; and the completion of the goal of the zero growth is postponed. The comprehensive TFR of urban and rural areas is 1.90 between 2000 and 2005, 2.00 between 2005 and 2010, 2.13 between 2010 and 2020, and 2.15 between 2020 and 2050. The total population is 1.375 billion in 2010, 1.490 billion in 2020, 1.548 billion in 2030, 1.585 billion in 2040 and reaching the peak of 1.605 billion in 2050. If the TFR remains around 2.15, the total population will float around 1.6 billion and be 1.6 billion by 2100.

Based on the comparison of the above three programs, it is beyond a doubt that the “hard landing,” in the low-level estimation, can control the population growth in the most effective way. In the low-level estimation, the peak value of the population is 78 million and 213 million smaller than the medium- and high-level programs and can be reached 9 years and 29 years ahead of the other two programs. By 2050, the population in the low-level estimation will be, respectively, 210 million and 408 million lower than the medium- and high-level estimation. The biggest disadvantage of the “hard landing” program is the excessively rapid change of the age structure, leading to serious population aging. In 2020, the proportion of the elderly population aged above 65 will be 0.50 and 0.88 % higher than the medium- and high-level program and will be 4.07 and 6.91 % higher in 2050. Especially in 2045, in the low-level estimation, the proportion of the elderly population will increase to 25.62, 0.32 % higher than developed countries, and will continue to rise. This situation is unacceptable for China, as a developing country. In addition, the rapid decline of the working age population also draws great attention. In the low-level estimation, the working age population aged between 15 and 64 is, respectively, 4.88 million and 8.64 million lower than the medium- and high-level program in 2020 and 121 million and 225 million lower in 2050. Moreover, the population aged 50–64 accounts for a large proportion of the working age population, indicating a serious comparative aging. Though the labor shortage is unlikely to take place in China, the rapid reduction of the working age population and the comparative aging will result in the structural shortage of labors and less vigorous human capitals market and bring about the adverse effect on economic and social development.

Contrary to the “hard landing,” in the low-level estimation, the “slow landing,” in the high-level estimation, has the advantage of a slow change of the age structure and slow and less serious population aging. The “golden age” of the population age structure, known as the “demographic dividend,” with the high proportion of working age

population and low dependent population, will last for a long time and retain China's advantage of abundant and cheap labors. The most obvious disadvantage is the weak control of the population size. The population in the "slow landing" program will be, respectively, 46 million and 105 million higher than the medium- and low-level program in 2020 and 197 million and 407 million higher in 2050. This is too difficult for China, a country of surplus population and labors.

By comparison, the "soft landing," in the medium-level estimation, integrates the effective control of the population size in the low-level program and the rational population structure in the high-level program and also soundly overcomes the irrational population structure of the low-level program and the weak population control in the high-level program. In the medium-level program, the total population will reach the peak of 1.465 billion by 2030 and then start the slow decline; the proportion of the elderly population aged above 65 will reach the peak of 23.07 % in 2050 and will be gradually released. The proper proportion and structure of the working age population adapt to China's current population status and the variation in the future. The medium-level program is ideal for China to facilitate the coordinated development of the population, economy, society, resources, and environment.

The "soft landing" medium-level program shall be placed as the foundation for the strategy of population development, especially in the 20 years of building a well-off society in an all-around way and even in a longer period. The guiding principle and the basic point for the program can be explained as the strategy to control the population quantity, improve the population quality, and adjust the population structure under the guidance of the people-oriented scientific concept of development and facilitate the coordinated development of the control, improvement, and adjustment and the sustainable development of the population, resources, environment, economy, and society. This strategy of population development has carried on the original strategy confirmed in the early 1980s, which was "to control the population quantity, improve the population quality, and adjust the population structure and place emphasis on the quantity control"; and the strategy also shows the new characteristics of the current age and population variation. The first difference between the two strategies lies in the different guiding principle. In the previous time, the guiding principle was to rapidly lower the population of high fertility rate and high growth rate and release and gradually eliminate the pressure of the surplus population and labors; the current principle is to incorporate the control of the population growth in the scientific concept of development and promote the implementation of the sustainable development. For the second difference, the previous strategy outlined the "quantity control" as the focus, but the current strategy also gives attention to other aspects in addition to the effective control of the population growth, especially the variation of the age structure. The third difference is the different strategic goal. In the previous "first step" of the strategy of population development, the primary goal is to lower the fertility rate below the replacement level, and currently, China has stepped into the "second step"; the goal is zero growth and the optimum population in a longer period. In order to carry on past



heritage and open up the future, the strategy of the population development in the twenty-first century shall be correctly confirmed to effectively promote the implementation of the strategy.

### **6.3.3 Policy Proposal**

The economic and social development is the basis and the protection of resources and environment is the premise for the “soft landing” development strategy that aims to realize the zero growth of the population. Social development is vital for the quantity control, structural adjustment, and quality improvement of the population. Fortunately, China has created a good foundation through rapid economic development in the 28 years after reform and opening up and it is possible to carry on the good momentum, which creates a very favorable external environment for the strategy of the population development. It is still difficult to realize the goal of the “soft landing,” because people’s intentions to have children are still far from the requirements of the birth policies and the birth rate is slightly rebounding. However, the above medium-level estimation does not request the continuous decline of the birth rate but asks for the stable birth rate after a slight recovery, which makes it more possible to realize the strategic goal. The specific proposals on the birth policy are listed as below:

1. The only children who marry each other are allowed to have two children, no matter in urban or rural areas. Currently, about 22 % of the married women of childbearing age have obtained the only-child certificate, with the urban areas much higher than the rural areas. Therefore, this policy will raise the fertility rate to a very limited level, so no additional qualification is needed.
2. In rural areas, if any only child gets married, his or her family is allowed to have two children. This policy can only be adopted in urban years several years later, especially after 2010. Due to the low only-child rate in rural areas, this policy exerts very little influence, but due to the high only-child rate in urban areas, this policy also plays a small role since both sides of most couples are only child. However, in urban areas, this policy shall be implemented after 2010 when the total number of women of childbearing age is reduced. However, this policy plays a practical and irreplaceable role in the support to the elderly of these families and the change of the age structure of the family population.
3. If the birth of three or more children can be effectively prevented, people in rural areas are allowed to have two children. The current TFR in rural areas is around 2.0. If the birth of three or more children can be prevented, except in the minority nationalities, the birth rate can be generally maintained at the current level, and the birth rate of rural areas and the whole country will not be greatly affected.

## 6.4 Review and Prospect of the Population Policies of New China<sup>9</sup>

As a country with the largest population in the world, China's population problem concerns the overall economic and social development. Since the foundation of new China, especially reform and opening up, the acceleration of the population transition has laid the foundation for economic and social development, where the population policy that aims to lower the fertility rate has played a key role. However, it is necessary to clarify some different opinions and estimations on China's population policies. After China has attained the low birth rate, China is faced with the choice of the population policy.

### 6.4.1 Historical Trace

The New China was established on a semicolonial and semifeudal society and was profoundly affected by the traditional view of "more children, more happiness." According to the population census in 1953, the birth rate had risen to 37.0‰ and the death rate had dropped to 14.0‰, hitting the record high of the natural growth rate of 23.0‰. This situation suggested that China had completed the transfer of population reproduction from high birth rate, high death rate, and low growth rate to high birth rate, low death rate, and high growth rate within 3 years and met with the first surge of birth. It had aroused great concern from the Party and government. Chairman Mao gave a speech during the 3rd session of the Eighth National People's Congress and proposed the conception of "pilot for 3 years, promotion for 3 years, and universal implementation" for the population problem, which gave birth to the early form of New China's population policies. Ma Yinchu's *New Theory on Population* was published in the *People's Daily* on July 5, 1957. The article analyzed the contradiction between the population overgrowth and the economic and social development and advocated the control of population quantity and improvement of population quality, which was complimented by central leaders, including Mao Zedong. However, in the anti-Rightist struggle in 1957, the theory on the control of the population growth was compared to the Malthusian Theory of Population and was therefore criticized. The doctrine of "larger population, more labors, more accumulations, and more rapid development" was formed, and no one dared to discuss on the population problem. Though in the early 1960s, central leaders and relevant documents had mentioned the population control and family planning but did not truly implement the policy. In the "Cultural Revolution" that lasted for 10 years, the population control and family planning halted.

China's population had exceeded 800 million in the 1970s. The government strengthened the population control against the severe population situation and gradually

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<sup>9</sup>This article was published on *People's Daily*, Dec. 4 2009.

clarified the birth policies. The State Council approved the *Report on the Family Planning Work* in 1971 and, for the first time, incorporated the control of population growth in the development plan of the national economy. In 1973, the “later and fewer births” was proposed, with fewer births as the focus; it gradually became the birth policy of “one child is enough, two children are the best, and three children are too many.” The government clearly identified that “each couple is advocated to give birth to only one child, two at the most” and listed in the Chinese Constitution that “the government advocates and promotes the family planning.” In December 1979, the Family Planning Leading Group of the State Council held a work conference in Chengdu and proposed that “each couple should better give birth to only one child, which is a strategic requirement of the current population development in China.” Since then, the only-child policy was beginning to gain momentum.

### 6.4.2 Key Decision

Facing the economic shortage and population and labor surplus in the late 1970s, the central leadership repeatedly emphasized the importance of the population control and family planning. Many scholars of science and social science have conducted numerous relevant studies. The central government had consecutively held five symposiums on population from March to May 1980. The sense of these meetings was that China’s fertility rate should be lowered as soon as possible due to the large population size, and the only-child policy should be adopted. The meeting also discussed the problems that may be incurred by the only-child policy and the solutions to these problems.

The symposiums also discussed on whether the only-child policy would lead to a lower level of intelligence. A Chinese folk saying indicates that the younger child of a family is cleverer than the elder child. However, according to materials and demonstrations, the birth order has nothing to do with the intelligence of the child. No scientific background can be found to support this folk saying, but the previous family status can explain the saying. In past times, the elder child often helped parents take care of younger brothers and sisters and then was often more tolerant and honest, while the younger children seemed more active and clever.

The symposiums had a fierce discussion on whether the only-child policy will lead to the aging population structure and labor shortage. Some people thought that the only-child policy could be adopted for a half or whole century to solve the severe overpopulation problem. Some believed that the only-child policy might lead to social problems, including the labor shortage, serious population aging, and heavy social burdens. The author believed that the only-child policy mainly aimed to control the fertility rate of one generation, and therefore control the number of parents for the next generation, so the policy mainly could exert influence in the future two or three decades. In this way, it could effectively control the population growth and prevent the severe population aging. The birth policy can be appropriately adjusted in the future to avoid the heavy burden of the elderly population and labor shortage.

Will the family structure of “four old men, two adults, and one youngster” be generated based on the only-child policy? Firstly, the “four old men” will not generally appear in these families. According to the death rates of different age groups, some people of each age group will die every year, while the death rate in the elderly population will be higher. Not all parents giving birth to the only child can live past age 60 or 65. The “two adults and one youngster” will only appear when the only child also gives birth to only one child, so the structure of “two adults and one youngster” can be avoided if the only child marrying another only child can give birth to two children. Therefore, though the only-child policy may lead to the family structure of “four old men, two adults and one youngster,” this structure will not be widespread or dominate the whole society.

The report submitted by the symposium to the Secretariat of the central government had reflected the above basic spirits and laid the foundation for the birth policies adopted since the 1980s. The basic principle was that, for governmental cadres, staff, and urban residents (except special cases), every couple could only have one child. Every couple in rural areas was also suggested to have only one child, and some people that really needed two children should obtain approval. In all cases, it was not allowed to have three children. Family planning was also advocated for the minority nationalities, but the requirements could be relaxed for them if necessary. It can be seen that the birth policy, with the only child as the symbol, officially proposed by the central government in 1980 was born after serious discussion and demonstration and was proven, through practices, to be favorable for the fundamental benefits of the state and nation. In addition, the symposium had also discussed the population quality, sex ratio, population urbanization, national composition, etc. and put forth relevant policy suggestions. As demonstrated by the practices in the recent three decades, the judgment on the population variation and development trend at that time was correct and the policy was successful. However, it does not necessarily mean that China’s population policy is perfect. Any policy, including the population policy, needs to be constantly improved and perfected. Particularly after the mid 1990s when China’s fertility rate had been significantly lowered, the population policy shall be correspondingly adjusted according to the change in circumstances.

### **6.4.3 Current Choice**

China can employ the “three-step” strategy of population development. For the first step, lower the high birth rate under the replacement level and realize the transfer of the population reproduction from high birth rate, low death rate, and high growth to low birth rate, low death rate, and low growth. In the second step, continue to lower the birth rate until the zero growth, and meanwhile place emphasis on the improvement of the population quality and rational adjustment of the structure. Thirdly, since the population will continue to decrease after the zero growth due to the inertia of the population, the optimum population shall be chosen according to the economic and

social development and the resources and environment at that time. The optimum population shall be optimum not only for the quantity but also for the population quality and age and sex structure and shall also adapt to the resources, environment, economic, and social development.

Currently, China has stepped into the “second step.” The guiding principle and fundamental tasks can be summarized as to combine the control of population quantity, the improvement of population quality, and adjustment of population structure under the guidance of the scientific view of development and realize the sustainable development of the population, resources, environment, economy, and society. Therefore, the population policies shall take the population variation and the all-around development into consideration; gradually transfer from the policy focusing on the quantity control to the policy attaching importance to all quantity control, quality improvement, and structure adjustment; and finally transform to the population policy that places emphasis on quality improvement and structure adjustment. In order to control the quantity, the following birth policies shall be taken into consideration:

1. The only children who marry each other are allowed to have two children, no matter in urban or rural areas. This policy can be employed since now. Currently, a larger proportion of married women of the childbearing age in urban areas than the proportion in rural areas have obtained the only-child certificate. Therefore, this policy will only raise the fertility rate to a very limited level.
2. In rural areas, if any only child gets married, his or her family is allowed to have two children. This policy can only be adopted rural areas now and adopted in urban years since the 12th Five-Year Plan. Due to the low only-child rate in rural areas, this policy exerts very little influence, but due to the high only-child rate in urban areas, this policy also plays a small role since both sides of most couples are only child. However, in urban areas, this policy shall be implemented after the 12th Five-Year plan when the total number of women of childbearing age is reduced. However, this policy plays a practical and irreplaceable role in the support to the elderly of these families and the change of the age structure of the family population.
3. If the birth of three or more children can be effectively prevented, people in rural areas are allowed to have two children. The current TFR in rural areas is around 2.0. If the birth of three or more children can be prevented, the birth rate can be generally maintained at the current level, and the goal of realizing zero growth of population by 2030 can also be realized. This policy plays a positive role in controlling the rise of the sex ratio at birth.

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# Chapter 7

## Population Research and Subject Building

### 7.1 Direction of the Population Research in Developed Countries and Population Problems<sup>1</sup>

The population investigation delegation of the Chinese Academy of Social Sciences, comprised of seven scholars, had visited the population research institutions of France, Belgium, the United Kingdom, Canada, the United States, and Japan, along with the United Nations Population Division from October 10 to November 24, 1981. A report of the visit is divided into three sections, as detailed in the following:

#### 7.1.1 *Direction and Characteristics of the Population Research in Developed Countries*

Our investigation delegation visited six developed capitalist countries, including France, Belgium, the United Kingdom, Canada, the United States, and Japan. The population research in these countries generally reflects the status of population research of current developed countries. The outstanding characteristics and direction are listed as follows:

##### 7.1.1.1 **Attach More Importance to the Microscopic Research of Demography in Addition to Macroscopic Research**

The macroscopic research refers to the overall study on the whole demographic phenomena, especially the research on demographics, including the total population, birth, death, and natural growth of population, population flow, age composition, and

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<sup>1</sup>This article was originally published in the *Population and Economy*, 1st issue, 1982.

average lifespan. The macroscopic research on the above basic state conditions is evidently necessary for the research on the economic, political, and cultural development of the country. The research institutions in the six countries also emphasize the study in this aspect. They have very complete population statistics for the recent decades or even centuries which clearly present the population evolution, the transition of the form of population reproduction, and the future trend of the population development, because they have attached importance to the macroscopic research and improved their researches over many years. It is notable that although they still pay attention to the macroscopic research now, they put more human and material resources on microscopic research to promote the population research.

For example, both the Institute of Population of the Group T International University in Belgium and the World Fertility Rate Association in the United Kingdom attach importance to the research on the population fertility rate, conducting meticulous studies accordingly. They carry out investigations and carefully analyze the factors that influence the fertility rate. The economic factor mainly refers to the cost and value to raise a child. Technical and psychological factors shall also be taken into consideration, i.e., people's willingness to give birth to the child and the technologies, including contraceptives. Physical factors cannot be ignored either, such as the great influence on the length of breastfeed time on child-bearing. The Population Institute of the East-West Center in the United States has conducted birth investigations in nine countries over 10 years, with 1,000–3,000 people as the target group each time, in order to observe the change of the fertility rate and the value of children. They have discovered that the first child has various meanings and values, including that the parents feel like they themselves are adults, the surname can be passed down, and the link between the couple can be strengthened. The motive for the birth of the second child is mainly to find a playmate for the first child and seek for sex balance in the family. The economic factor mainly contributes to the birth of the third child or the child born later. The value of the child decreases along with the increase of the number of children. The investigations have also discovered that developing countries prefer boys, while developed countries mainly pursue the sex balance of the family. The order of births also greatly influences the fertility rate. Finally, they try to integrate the economic, technical, physical, psychological, and administrative factors; find out the correlation coefficients among these factors; put them into the mathematical equations; and conduct the quantitative analysis to find out their influence on the fertility rate. It is a direction of the population research in these countries that merits attention in order to conduct in-depth and careful microscopic research on the population phenomena from the perspective of sociology.

#### **7.1.1.2 Place More Emphasis on Applied Research than Basic Research**

All six countries our delegation has visited attach importance to research on population sciences and invest considerable capitals and manpower in said research. They have set up many governmental or non-governmental organizations, or research



institutes in some universities. However, the school or major of demography is seldom established in universities; some population institutes of universities enroll quite a few students, but only a few university students study demography; and many magazines and journals are studying on demography, but textbooks on demography are rarely seen. This indicates that the six countries pay much more attention to the applied research than the basic research.

Why? According to our understanding, scholars in the basic research of demography in the United States and some other countries need to propose the research subject and apply for funds from relevant departments of the government, but they are not sure whether they can successfully obtain the funds. On the contrary, the scholars involved in the applied research may conclude the contract with relevant departments of the government or big companies through existing channels, plan the scientific research, and obtain research funds; or they may undertake the research projects according to the needs of relevant departments and companies (mostly by advertisement) and obtain the funds. It can be seen that people prefer the applied research method owing to the clear goal, limited time, and guaranteed payments.

It is important to understand that developed countries attach more importance to the applied research of demography, which can be considered as the junction for China to understand their population research. For example, these countries place great emphasis on population research. They establish many research institutes, own a great number of talents, possess advanced methods, and contribute great investment into population research. However, countries other than Japan seldom involve research on the population of their own countries but mostly invest on the research of the foreign population, especially the population development of developing countries. Why? As an important factor, they believe their birth rates have been lowered and will not suffer from a severe population problem, so they do not need to conduct more researches on it; however, developing countries are faced with the risk of population “explosion” and a population problem unique to developing countries.

### **7.1.1.3 Place More Importance to On-the-Spot Investigation and Quantitative Investigation than on the Theoretical Analysis and Qualitative Analysis**

This is related to their emphasis on the applied research. Researches shall be conducted on practices instead of theories and will be featured with predictability, for the sake of applications. The quantitative research is made to discover the mutual restrictive relations in the population, economic, and social development. It is fairly common for the United States and some other countries to establish the model for population development by applied matrix, calculus, and probability, which may become a part of quantitative demography. It is an unwritten rule that a doctorate degree can hardly be attained without the original model for population development. However, these countries also conduct theoretical analysis on the population. They link the population development to GNP, link the population

urbanization to industrialization, discover the quantitative relation of a number of variables, and present them with mathematical equations, based on certain theoretical guidance. Our delegation met a population economist studying on the investment on human capitals at the University of Chicago. He considered it meaningless to mention the old theory of optimum population. It is interesting that his research subject is the role of economic factors in the birth rate, death rate, and cost of raising a child as well as the influence of the birth, death, migration, and age structure of the population on economic development. According to his mathematical model, he has confirmed the certain quantitative relation between population and economic development and elaborated a theory on population quantity that adapts to economic development, which has a certain relation with the theory of the optimum population.

Therefore, though these countries place more emphasis on the quantitative population study, they also have their own population theories, which are linked to the quantitative analysis. China has strength in this aspect owing to the theoretical guidance of Marxism. However, China has ignored the quantitative analysis, which is adverse for research. The author does not advocate copying the method of the foreign demographic research, because China is featured with its own practical conditions. However, China shall strengthen the quantitative research and learn scientific aspects from their researches, including some methods for the quantitative analysis.

### ***7.1.2 Population Urbanization and Labor Transfer***

As capitalist countries with highly developed productivity, the six countries our delegation visited have experienced and generally completed the first labor transfer from agriculture to industry and the second labor transfer from industry (mainly manufacturing) to the service sector. The transfer of labors, which are the core component of the total population, will definitely lead to the population urbanization. There are two ways for the agriculture to transfer to industry. The first is the Western European or North American style, where labors and depending populations transfer from rural areas to urban areas and therefore promote the population urbanization; and the second is the Japanese style where the majority of people still stay in rural areas but are engaged in nonagricultural work. The Western European or North American style is superior to the Japanese style based on the comparison. Demographers all agree that the labor productivity of agriculture will see a sharp rise along with the process of industrialization, then a large number of agricultural labors will be transferred to industry, and a great amount of people will rush to cities, leading to population urbanization. This is an inevitable phenomenon based on industrialization and economic development. However, the population in large cities has been decreasing in recent years, which can be commonly seen in some large cities in Japan, the United States, and the United Kingdom. Many people transfer to small or medium cities or to their hometowns from large cities. The following factors contribute to this phenomenon:

Firstly, the population urbanization has developed along with industrialization in the rising stage of capitalism, when many peasants losing their land and proletarians flow to cities mainly in search of jobs. Cities function not only as the exchange market of general commodities but also as the exchange market of labors, the special commodities, with the “enclosure movement” in England as the example. As the trace of the enclosure movement, the pastures in the United Kingdom are still enclosed by wire. As the developed capitalist countries have completed their industrialization, the current labor market in cities greatly varies from the previous labor market at the primary stage of industrialization. The agricultural workers do not rush to cities as they did in previous times, so the population expansion in cities has stopped.

Secondly, the rapid development of big cities results in the increasingly serious pollution of waste gas, wastewater, waste residues, and noise, especially the central district of cities that developed in an earlier time. This adverse environment creates discontent within the people, who hope to find a more pleasant area in which to live.

Thirdly, diversified stores, grand theaters, and various places of entertainment, which could only be seen in large cities, are now widespread in small and medium cities and even in villages. Movie theaters, televisions, telephones, and modern housing have become fairly common. In addition, the wide application of small cars, the construction of highways, and development of new technologies have greatly compressed time and space, so people can live comfortably and conveniently in places other than large cities. Therefore, the central districts of New York and many other cities have started to decline, and many people “return” to suburbs and even other states.

This trend is worthy of note. The “return” of the population results from the economic development and necessarily exerts profound influence on economic development. How should China carry on the population urbanization in the process of four modernizations? Should China adopt the Japanese style, Western European and North American style, or other styles? Chinese economists and demographers all advocate the population urbanization through the development of small and medium cities instead of big cities. However, this suggestion cannot fully solve the problem. What is the foundation for the development of medium and small cities? How is the contradiction in investment, raw materials, and market between the local industries and collective enterprises of high cost and great waste and the enterprises owned by the whole people to be solved? The problems of population urbanization cannot be solved by the general proposal of developing small and medium cities and small and medium enterprises. China shall learn positive and negative experiences from the twice labor transfer in foreign countries and their process of population urbanization and combine the practical situation of China, to carefully study on the problem.

### ***7.1.3 Population Aging and Economic Slowdown***

The six countries have seen a decline in the birth rate at an earlier time and are now suffering population aging of varying degrees. In 1981, the proportions of the

young people aged below 15 years in the total population in the United Kingdom, Belgium, France, Canada, the United States, and Japan were 10–13 % lower than the world average level, but their proportions of the elderly population aged above 65 were 2–8 % higher. Their life expectancy was 11–14 years longer than the world average level. These statistics indicate the comparative population aging in these countries.

One of our delegation's key subjects of the investigation is the influence of population aging on the social and economic development. The French National Institute of Demographic Studies, the Institute of Population of the University of Western Ontario in Canada, the Institute of Population in the University of Chicago in the United States, the Population Research Center of the University of California at Los Angeles, and the Institute of Population in the East-West Center all assign experts to study on this problem. In particular, the Institute of Population of Nihon University conducts in-depth study on this problem and suffers from problems similar to China. The author here gives some opinions mainly based on their studies on population aging.

After World War II, especially in the 1950s, Japan had seen a sharp decline in the birth rate. In 1960, Japan's birth rate was 28.3‰ and the growth rate was 17.3‰, which respectively declined to 17.3‰ and 9.7‰ in 1960, with a decline rate of 11‰ and 7.6‰ in 10 years. It is rarely seen in the world history of population development, similar to China in the 1970s. At the same time, the total fertility rate of women had dropped from 3.65 to 2.0, lower than the replacement level. The decline of the birth rate of Japan in the 1950s had significantly reduced the population pressure and facilitated the restoration and development of the economy in Japan after World War II. However, despite the advantages brought about by the decline of birth rate, the population-aging problem will become very serious over the next several decades in Japan, according to the prediction of Japanese demographers. The National Institute of Population under the Ministry of Health and Welfare estimates that the proportion of the elderly population aged above 65 will be 8.9 % in 1980 and will increase to 14.3 % in 2000 and 18.8 % in 2020. Some demographers believe that the rapid growth of the elderly population will incur a seriously adverse effect on economic development due to the following causes:

Firstly, the rise of the proportion of the elderly population and the decline of the proportion of the working age population will lead to the comparative reduction of labors, which will influence the speed of economic development.

Secondly, in addition to the total population, the working age population is experiencing comparative aging. The aging rate of the working age population (population aged 45–64/population aged 15–64) can be utilized to measure the aging degree of the working age population. The aging of the working age population in Japan is even more rapid than the aging of the total population. This will directly influence on the quality of labors.

Thirdly, the fee on social welfare directed at the elderly population will greatly increase. The proportion of the social welfare in the national income in Sweden and Germany, the two countries suffering serious population aging, had respectively increased from 12.4 % in 1960 to 32.2 % in 1970 and from 16.6 %

to 23.1 %. The proportion in Japan is now (as of 1982) 10.98 %, which is estimated to reach 25.6 % by 1995, with a growth of 1.5 times in 15 years, which is quite startling.

Fourthly, universities and other educational facilities that mainly serve the young and middle-aged will be wasted due to the growing elderly population.

Fifthly, the social psychological status is changing. Currently, only less than 1/4 of the children in Western European countries are living with their parents and grandparents, compared to 2/3 in Japan, owing to the ideological effect by China's Confucianism. The psychological status will gradually change along with the population aging, which will exert influence on economic development.

In view of this, some Japanese demographers propose to raise the birth rate. The current total fertility rate in Japan is 1.8. How greatly shall the TFR be increased? Will the growth of total population favor economic development? These problems are difficult to answer. Some even propose to develop robots to overcome the problems incurred by population aging. The Institute of Population at Nihon University cooperates with the Economic Planning Agency of the Japanese government to make predictions based on more than 600 mathematical equations. According to the prediction, the economic growth rate may only maintain at around 2 % in the twenty-first century due to the population aging and some other factors. Some demographers point out that the Japanese economy has come to stagnation after its rapid development. The population aging has brought about the economic slowdown.

This demonstrates that the change of the age structure of the population will exert great influence on social and economic development. The large population, rapid population growth rate, and young age structure in China show some adverse effects on social and economic development, so the population growth shall be effectively controlled. However, due to the young age structure, small proportion of the elderly population, and increasing proportion of the youngster population due to the effective control of the fertility rate, the working age population occupies a greater proportion, which is favorable for economic development. This trend will continue to develop, and each working age labor will bear fewer and fewer old and young people, giving rise to the golden age of population structure that will facilitate economic development. China shall follow the socialist economic laws and population laws, organize the working age population in the construction of socialism, give full play to their intelligence and talents, and develop some labor-intensive industries, in order to play to its own advantage. The full application of cheap labors has contributed to the economic "take off" in Japan. As a country with abundant labors, China shall give full play to these labors, solve the employment problem, actively make use of labor resources, and produce more labor-intensive products. In this way, China will be featured with the incomparable advantage. Therefore, China shall consider both the difficulties incurred by the large population under the current backward economy and the favorable effect of the young age structure on economic development in the next two and three decades, promote advantages, abolish disadvantages, and discover the useful strength based on the analysis over the age structure of population.

## 7.2 On the Additional Social Cost-Benefit of Children<sup>2</sup>

Since the family planning was vigorously implemented in the 1970s, China has attained tremendous success in the control of population growth as acknowledged by the world. Meanwhile, all social sectors home and abroad consider this great performance as a result of the implementation of the population growth policy, which was even confirmed as the basic state policy in the 1980s. Why is the population policy able to influence the birth behaviors and number of births? How will the role of this policy change under the socialist market economy? How is China to pursue the constant decline of the fertility rate and realize the virtuous cycle of the population and economic and social development at the same time? These are the issues that have drawn universal concern. New theories are needed to make breakthroughs in these issues. In view of this, based on existing research results and the practical experiences in the decline of China's fertility rate, this article proposes the theory of the "additional social cost-benefit of children."

The western theory of the cost-benefit of children can scientifically explain the decline of the fertility rate in developed countries due to two premises: Firstly, these countries share a market economy economic structure of free competition, where the limit of the family consumption, indifference curve, and consumer equilibrium can play their roles and exert an impact on people's birth behaviors and birth decisions; secondly, the birth behaviors and birth decisions of families are made by the families themselves and are hardly interfered by external forces from the society or the governmental policies. However, after World War II, governments in developing countries increasingly interfered in families' birth behaviors, and many countries have formulated a family planning policy to control the population growth and have thus made noticeable results. This situation makes it difficult to explain the decline of the fertility rate in countries of underdeveloped economies through the general western theory of the cost-benefit of children. China is a typical example. China's TFR had dropped from 5.44 in 1971 to 2.63 in 1981, with a decline rate of 51.7%, which has rarely been seen in the world population history. During this period, the national economy and per-capita income was improved. The per-capita national income based on the prices of that year had been increased from 240 yuan to 397 yuan, with a growth rate of 65.4%, but the actual growth was only 46.5% after the deduction of price increases.<sup>3</sup> The low economic level that can only provide abundant food and clothing and slow economic growth rate led to the change of the cost-benefit of children, but this situation should have raised the fertility rate instead of lowering the fertility rate. However, China had astonishingly lowered the fertility rate. From 1981 to 1991, the per-capita national income based on prices of that year had increased from 397 yuan to 1,401 yuan, with a growth by 2.5 times, and had

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<sup>2</sup>This article was originally published in the *China Population Statistics Yearbook*, Economy & Management Publishing House, 1994.

<sup>3</sup>Data source: *China Population Statistics Yearbook 1986*, Social Sciences Academic Press 1987, P443; *China Statistical Yearbook*, China Statistical Publishing House 1992, P32-33.

increased by 1.1 times according to the comparable prices. China has seen the most rapid development of economy and per-capita income in this period among the past 40 years. However, the TFR had dropped from 2.63 to 2.25 (by 14.4%) [25], differing from the rise of the per-capita income. Therefore, it is evidently correct for domestic and foreign opinions to attribute the decline of the fertility rate in more than two decades to the implementation of the population policy. However, some people criticize the policy under the pretense of “human rights,” which theoretically makes the population policy free from the cost-benefit of children. In order to prevent this mistaken idea, it is necessary to connect the population policy to the theory of children’s cost-benefit and analyze how the population policy influences on the children’s cost-benefit. Therefore, the new theory and the analysis of the theory based on specific practices shall be established, i.e., the theory of children’s additional social cost-benefit and its practices in China.

The “children’s additional social cost-benefit” can be defined as the cost and benefit increased or decreased by exceeding or fulfilling the requirements on the number of children according to certain social norms, especially the birth policies. It is the cost and benefit added by society, other than individual families. If the birth policy aims to control the population growth, it shall increase the cost for the children exceeding the regulated number of children according to the birth policy and increase the benefit for the children born inside the policy; in addition, reduce the cost for the children born inside the policy and the benefit for the children born outside the birth policy. On the contrary, if the birth policy aims to encourage population growth, it shall increase the cost for the children born inside the policy and increase the benefit for the children born outside the birth policy; in addition, reduce the cost for the children born outside the birth policy and the benefit for the children born inside the policy. Most parts of the world are adopting the former birth policy, while few nations employ the latter, which exerts insignificant influence on the variation of the cost and benefit. However, the latter cannot be ignored in concept and theory and is considered as an integral part of the theory of children’s additional social cost-benefit.

Based on practices in China, specific analysis and explanation will be conducted on the “children’s additional social cost-benefit” aiming to control the population growth as below.

### ***7.2.1 Concrete Analysis on and Examples of Children’s Additional Social Cost-Benefit***

The “children’s additional social cost-benefit” aiming to control the population growth can be divided into two aspects: reducing the cost and growing the benefit for the children born inside the policy especially the only child and increasing the cost and decreasing the benefit for the children born outside the family planning. The costs consist of the direct economic cost and indirect mental or psychological cost; the benefits include the direct economic benefit and indirect mental or psychological benefit.

The direct economic cost in the “children’s additional social cost-benefit” refers to the monetary cost and the present value of other material costs incurred on families to support the children, which is increased or reduced according to the number of children regulated by the birth policy. For example, at present, China advocates only one child per couple. Some economically developed regions in China exempt or reduce the fees for preschool education, primary and secondary school education, college-level education, medical care, etc., of the only child, thus directly reducing the economic cost. Meanwhile, in all of China, parents of children born outside the family planning are charged fines, which directly increase the economic cost of the children.

The indirect mental or psychological cost in the “children’s additional social cost-benefit” refers to the value of the mental or psychological cost incurred on parents giving birth to a child, which is increased or reduced according to the number of children regulated by the birth policy. For example, criticisms are made on the parents giving birth to children born outside the family planning, and even administrative measures are adopted for serious cases, thus to incur the loss of reputation, i.e., the mental or psychological cost, on the parents of the children born outside the family planning.

The direct economic benefit in the “children’s additional social cost-benefit” refers to the monetary cost and the present value of other material costs provided to the family giving birth to a child, which is increased or reduced according to the number of children regulated by the birth policy. For example, the parents of the only child enjoy a monthly reward of 5–10 yuan after they have received the “certificate for only child.” This is a direct increase of the economic benefits of the only child. Some regions employ the inferior policy for the children born outside the family planning in the change from a rural residence registration to non-rural residence registration and employment and provide preferential treatment to the only child and children born inside the family planning under the same circumstances, which directly influence the economic benefits provided by the children born outside family planning to their families.

The indirect mental or psychological benefit in the “children’s additional social cost-benefit” refers to the mental or psychological value provided to the families giving birth to a child, which is increased or reduced according to the number of children regulated by the birth policy. For example, the couple giving birth to only one child will receive the Honor Certificate of the Only-Child. In addition, some working units will be awarded to them through various ways to enable the parents of the only child to fully enjoy the honor for their response to the government’s call of control of the population growth. In this way, the mental value can be created.

The direct economic cost and indirect mental or psychological cost as well as the direct economic benefit and indirect mental or psychological benefit in the “children’s additional social cost-benefit” are mutually complementary and measurable. Generally, the birth policy can regulate the direct economic cost or the indirect mental cost or provide regulations to combine the direct economic cost or the indirect mental cost. Or the policy can integrate the direct economic cost,



indirect mental cost, direct economic benefit, and indirect economic benefit in its specific measures. Their replacement relations can be clarified with the following two examples:

*Example 1* If the total cost of the birth policy of a region to control the population growth is  $C_t$ , the direct economic cost is  $C_e$ , and the indirect mental cost is  $C_m$ , then

$$C_t = C_e + C_m$$

Suppose that two people who were only children marry each other: They can have two children according to the birth policy of this region but are never allowed to have a third child. The parents will be fined 2,000 yuan for the birth of the third child, and the parents will be criticized and given certain administrative punishment. According to the scientific investigation (the random sampling is the best), the direct economic cost, i.e., the fee of 2,000 yuan, accounts for 40 % of the total cost of the birth policy for the third child that pushes the parents to give up the third child, while the indirect mental or psychological cost constitutes the other 60 %. This indicates that the mental cost, taking up 60 % of the total cost, is more important than the economic cost, taking up 40 %, for people giving up the birth to the third child. Then,

$$C_m = C_t - C_e = 3,000 \text{ yuan}$$

*Example 2* If the additional social benefit for the couple having only one child in a certain region is  $B_t$ ; the direct economic benefit, i.e., the reward for the parents of the only child, is  $B_e$ ; and the indirect mental or psychological benefit, including the “Honor Certificate of the Only-Child” is  $B_m$ , then

$$B_t = B_e + B_m$$

According to the scientific investigation, the monthly reward for each family who give up the birth to the second child is 10 yuan, 1,680 yuan in total in 14 years, which only takes up 1/5 of the psychological benefits; the other 4/5 are made up by the mental or psychological benefits obtained from the response to the government’s call on the population control and the contribution to the implementation of the family planning. Then,

$$B_m = B_t - B_e = 6,720 \text{ (yuan)}$$

The mental cost and mental benefit are not calculated based on the birth policy itself but are obtained from the scientific investigation on the specific mental or psychological effects led by the specific policy at a specific time. Evidently, the

indirect mental cost and benefit vary greatly at different times. The estimation over the metal cost and benefit is similar to the “shadow cost” and “shadow benefit.”<sup>4</sup>

### 7.2.2 *Strengthen the Adjustment of Children’s Indirect Cost-Benefit*

Now incorporate the additional social cost-benefit of children in the general equation of the children’s cost-benefit analysis. If  $C_d$  represents the direct cost of a marginal child,  $C_i$  represents the indirect cost of the marginal child,  $C_e$  represents the additional social direct economic cost of the marginal child,  $C_m$  represents the indirect mental or psychological cost,  $B_t$  represents the all major benefits including the labor benefit and old-age insurance benefit of the marginal child,  $B_e$  represents the direct economic benefit of the marginal child, and  $B_m$  represents the indirect mental or psychological benefit; the total net cost of the marginal child,  $C_n$ , can be presented by the following formula:

$$C_n = C_d + C_i + C_e + C_m - B_t - B_e - B_m$$

As shown by the formula, the total net cost of the marginal child here is different than the net cost of a child proposed by G. S. Becker. G. S. Becker’s net cost excludes the additional social cost and benefit, but the total net cost here adds to the direct economic cost and indirect mental or psychological cost as well as the direct economic benefit and the present value of the indirect mental or psychological benefit as regulated by the birth policy, in addition to the net cost proposed by G. S. Becker. Therefore, the above formula functions in two ways for the practical population control of China.

Firstly, if the birth of the child is encouraged, such as the only child, the negative value of the total net cost of the child shall be maximized to make sure  $C_n < 0$ . Then,

$$C_d + C_i + C_e + C_m - B_t - B_e - B_m < 0$$

$$C_d + C_i + C_e + C_m < B_t + B_e + B_m$$

Based on the practices in China, in order to satisfy the inequality and increase the absolute value of the inequality, the following shall be considered in the adjustment of the direct cost and benefit of the only child:

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<sup>4</sup>Shadow cost and shadow benefit refer to a method to estimate the indirect mental or psychological cost and benefit led by the birth policy. Despite no clear pricing for the indirect mental cost of benefit, they can be confirmed by finding out their ratio to the direct economic cost and benefit through the scientific investigation, which can be considered as the value projected by the direct economic cost and benefit of the birth policy.

Firstly, guarantee  $C_e + C_m < 0$  and apply it in practices. Since the government vigorously advocates each couple having only one child, no additional social direct economic cost and indirect mental cost will be incurred, so there is no problem in  $C_e + C_m = 0$ . In order to make the value negative and reduce the total cost of the only child, some places reduce the direct cost by giving priority to the only child in pre-school education, school education, and medical care and reduce the time loss of parents thus to reduce the indirect cost. Currently, the provisions shall be further standardized, and more powerful legal protection and administrative system are needed, in order to completely implement  $C_e + C_m < 0$  in practices.

Secondly, effectively increase the value of  $B_e + B_m$ .  $B_e$ , as the additional social direct economic benefit, mainly refers to the monthly reward of 5–10 yuan for the parents of an only child. Though it is a good method to increase the reward, it would be difficult to increase the reward in most places due to the limited economic development and income growth. Moreover, the monthly increase of a few yuan can hardly effectively increase the direct economic benefit of the only child under the background of inflation. The Institute of Demography of Chinese Academy of Social Sciences, the Family Planning Commission of Sichuan Province, the Sichuan Branch of the People's Insurance Company of China, and the Sichuan Life Insurance Company have jointly organized the experiment on the endowment insurance for the only child and their parents and have created a new path. This method does not issue the reward of 5 yuan per month for the only-child families but saves the money toward an insurance fund against injuries and death for the only child, so the parents can obtain some insurance money. When the parents reach the age of 60, the money will be transferred to the old-age insurance fund, and parents will receive a certain amount of pension each year or month after retirement, generally above 160 yuan per month. This will alleviate the concern for their basic needs. This policy gained good results in Sichuan Province. It consolidated and improved the ratio of the only child, fundamentally solved the future trouble of the only-child families in rural areas, and provided an effective way to increase the value of  $B_e$ .

Various places bring about different methods to increase the value of  $B_m$ . In addition to the mental benefit of the families of the only child or the children born inside the family planning, priorities are given to the only child in employment, their transfer from the rural residence to non-rural residence, etc., to increase the labor-economic benefit of the only child. These policies also make good performance.

Secondly, if the birth to the child violates the birth policy, such as the third child or the second child born in violation against the policy regulation, the total cost of the child shall be maximized to make sure  $C_n > 0$ . Then,

$$C_d + C_i + C_e + C_m - B_t - B_e - B_m > 0$$

$$C_d + C_i + C_e + C_m > B_t + B_e + B_m$$

Based on the practices in China, in order to satisfy the inequality and increase the absolute value of the inequality, the following shall be considered in the adjustment of the direct cost and benefit of the only child:

Firstly, increase the direct economic cost ( $C_e$ ) and the indirect mental cost ( $C_m$ ) of the children born outside the family planning, to satisfy the inequality and increase the absolute value. The major way to increase the direct economic cost ( $C_e$ ) is to collect the fine on the children born outside the family planning. However, some wealthy people do not fear of the fine because the fine is not large enough to concern them, while some poor people have no fear for the fine since they cannot afford it at all. These two situations shall be effectively solved. The key lies in a moderately priced fine, i.e., a proper value of  $C_e$ , which shall, at the same time, effectively increase the cost of the children born outside the family planning and ensure most people can afford it. As early as in 1989, the topic group of population countermeasure of the Institute of Demography of Chinese Academy of Social Sciences proposed that the annual fine on the children born outside the family planning should equal to the local annual per-capita income and the fine should be collected for a consecutive 14 years, as long as the term for the reward on the only child. Provinces, autonomous regions, and municipalities directly under the central government shall confirm the fine due to their local income levels. This method is comparatively practical and feasible. Various methods are adopted to increase the additional social indirect mental cost ( $C_m$ ), but they shall be further institutionalized based on experiences and lessons. These methods shall prevent the children born outside the family planning, comply with laws and regulations, and meanwhile be reasonable.

Secondly, reduce the additional social direct economic benefit ( $B_e$ ) and indirect mental benefit ( $B_m$ ) of the children born outside the family planning. Inferior treatment in employment and distribution of contracted fields in rural areas under the same circumstances shall be provided to children born outside the family planning, i.e., when the children born outside the family planning share the same physical and cultural quality with the children born inside the family planning. The premise must be satisfied, otherwise the inferior treatment will be unfavorable for development and the ultimate solution to the population problem.

Thirdly, increase the direct cost ( $C_d$ ) and indirect cost ( $C_i$ ) of the children born outside the family planning and reduce the total benefit ( $B_t$ ) for their parents. The total cost or benefit equals to the cost and benefit of children in the western microscopic population economics. As mentioned above, the cost and benefit will change along with economic development and the change of the birth conception led by the economic development. Regarding the interest guidance, the key is to employ the policy of distribution according to work, where the complicated work will receive several times of pay than the simple work, in order to ensure that the individuals and families' investment in education and population intelligence will bring about corresponding and additional benefits. The focus of the problem shall be placed on overcoming the unfair distribution, particularly the unfair distribution between the physical and mental work. Only based on the fair distribution between the physical and mental work can the families transfer the investment on the quantity cost of children to quality cost, pursue the quality of children instead of quantity, and change the birth conception from more births to fewer and better births.

Based on the equation of the total net cost of children, the above opinions on lowering the fertility rate through the adjustment of children's cost and benefits satisfy the requirements of the formula. However, these above points do not share the same status. It is notable that under the socialist market economy, children's direct cost and benefit, especially the direct economic cost and benefit in the birth policy, are playing an increasingly important role. In the sharp decline of the fertility rate in the previous two decades, China has adopted effective measures, mainly the administrative measures, to give full play to the role of children's indirect cost and benefit, especially the indirect mental or psychological cost and benefit in the birth policy. Though these measures are still effective, their roles and status are weakened. Therefore, the key among the above considerations is to increase the additional social direct economic benefit ( $Be$ ) of the only child, increase the additional social direct economic cost ( $Ce$ ) of the children born outside the family planning, and reform the payment method of the benefit and collection method of the cost. As the basis for the increases, the economic development, technical progress and growing per-capita income will facilitate the transfer from the investment on quantity cost to the investment on quality cost. This situation will stimulate the population growth and meanwhile inhibit the population growth, but it is currently transferring from stimulation to inhibition. The confirmation of the market economy vigorously promotes the competition in talents, science, and technology behind the fierce competition among enterprises and commodities and therefore enhances the investment on the population intelligence. In areas that usher in reform and opening up in an earlier time, the transfer from the investment on the quantity cost of children to the investment on quality cost has begun, and emphasis is placed on fewer and better births and better education. This is the hope for the overall solution to China's population and development problems and the fundamental strategy to adjust children's cost and benefit to facilitate the decline of the fertility rate.

### 7.3 Studies on Population Culture<sup>5</sup>

It has been said that humans are cultural animals, which really makes sense from a certain perspective. What is man? What is man's nature? Aristotle, the ancient Greek philosopher, had given several definitions on man, including the "political animal," "social animal," and "amphibious animal with two feet," and tried to discuss man's nature from perspectives of morality, rationality, and learning. Karl Marx and Friedrich Engels distinguished man from animals through man's social attributes and creative labor and unveiled man's nature in terms of both practices and history. Lewis Henry Morgan stated in *Ancient Society* that humans "upgrade from ignorant society to civilized society based on the slow accumulation of experiences and knowledge." The common ground of the above statements lies in the subjective and creative labor

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<sup>5</sup>This article was originally published in *The General Theory of Population Culture* edited by Tian Xueyuan, China Population Publishing House, 2004.

in the evolution from ape to man, according to the traditional theory of evolution. The simple labor tools primarily produced were the most important symbol for the birth of men. The simplest labor tools, including sticks and sharpened stones, can be considered the earliest cultural symbols of humans. In this sense, men created culture and culture distinguished men from animals. Men and culture march forward hand in hand through long history. Therefore, the saying “humans are cultural animals” makes sense. However, the population culture cannot be simply clarified in this way. The normalized basic concept, as well as the population change and development, shall be firstly discussed to explain population culture.

### ***7.3.1 Concept of Population Culture***

As a collective concept, the “population culture” consists of two ideas: population and culture. Therefore, population and culture shall be defined first.

The definition of population is linked with man and human and the origin of man and human. According to scientists, the Earth has a history of 4.7 billion years, in which creatures have existed for more than 2.3 billion years and humans may have existed for 4 million years. How was man born? What is man? What is man’s nature? Throughout history, Chinese and foreign people have conducted long-term explorations on these questions and hold many different ideas. In ancient times, the most popular opinion in the west was that man was created by God and God created people of different nationalities, races, and classes according to His own will. Ancient China believed that man was created by the mutual effect of Yin and Yang. These opinions have been abandoned along with the development of modern science and technology. Currently, there are still many different opinions. Several years ago, an American scholar proposed that man originated from fish. He said that swimming people looked exactly like big fish. Of course, in addition to the appearance, he also put forward several proofs for his hypothesis. For example, man bursts into tears when he cries, but animals such as the ape do not have tears because they have no lacrimal gland. If man developed from the ape, where does man’s lacrimal gland come from? Moreover, man varies greatly with animals such as the ape in the way of procreation, which plays an important role in the history of human evolution. Though this opinion is just one anecdote, people share the consensus that man originated from apes, so here the population culture can only be deduced on this basis. However, it is necessary to know that people have different opinions on the evolution and development of man and provided many proofs.

Many archaeologists, anthropologists, psychologists, biologists, and sociologists give various definitions and explanations on man and man’s nature based on the traditional theory of evolution from ape to man. They give explanations in terms of man’s physiological functions, property inheritance, interests and hobbies, gregarious customs, religious beliefs, and moral consciousness and finally summarize man as the wisest and the epitome of all creatures in the world. Even Charles Darwin, the author of the *Theory of Evolution*, had a vague understanding of man’s nature and

focused on the scope of biology. The key question was: What facilitates the evolution from ape to man? What are the fundamental differences between man and animals? Before the appearance of man, the apes were only a part of animals and belonged to the natural world, but what separated primitive man from nature? The answer is labor, the earliest and simplest work of the primitive man. As pointed out by Friedrich Engel in the *Dialectics of Nature*, labor is “the first fundamental condition for the whole human life” and “labor creates man himself.” The difference between humans and animals is that “animals only utilize the external nature and change the nature simply with their existence, but humans change the nature to serve for their own goals and dominate the nature.” This fundamental difference also results from “labor” [26]. Labor is people’s purposeful activity, with the production and use of tools as the most fundamental characteristic. It is an expression of people’s consciousness and therefore a kind of culture. Culture is an important factor contributing to the isolation of humans from animals. According to the *Contemporary Chinese Dictionary*, man is the higher animal that can produce and use tools in labors; and human is the totality of men [15]. Here, man and human are abstract concepts without any definition of the amount, which can be taken as the man, women, Chinese, foreign people, human society, and antihuman.

Population is a much different concept. In English, population means a total of all humans in the universe, but it sometimes refers to partial residents, such as the youngster population, working age population, and elderly population. Population size generally means the total number of people in a certain region within a certain period. Population originally referred to the universe but now represents the population size. It is important to distinguish man, human, and population in the discussion on population culture, in order to reasonably define the denotation and connotation of population culture.

People have many different definitions of “culture” owing to three causes. Firstly, people give definitions of culture based on different subjects, including history, philosophy, literature, art, religion, economy, politics, and laws. Secondly, people show different ways to give definitions, with some of them inclined to internal and psychological aspects and others inclined to external and generative aspects. Thirdly, some lay particular stress on the past and history, some emphasize on practices, and some focus on the future. Currently, more than 100 kinds of definitions have been given to culture, but in general, culture can be defined from three levels.

The first level is the broader definition of culture. Pyramids built by ancient Egyptians were human society’s great undertaking in ancient architecture, as well as the symbol of Egyptian scientific and cultural development, representing the Nile culture; the Great Wall, Imperial Palace, and Summer Palace of China have been listed as the world cultural heritages, because these constructions symbolize the material civilization and spiritual wealth of history, which are also considered culture; and the constructions left over from the fourteenth to sixteenth century in Italy represent the human orientation, opposition against religion, and scholasticism in the Middle Ages and advocate the spirit of the Renaissance, also representing the culture of that age. The culture in a broader sense refers to the totality of the material and spiritual wealth created in a certain historical period.

The second level is the general sense of culture. In the Crete Island in the Aegean Sea, the birthplace of Greek civilization, residents there had established business relations with tribes on the Mediterranean coast. Therefore, the culture in a general sense is generated based on fair commercial exchanges, which is a certain social ideology, including ideas, conceptions, traditions, beliefs, religions, moralities, ethics, and the “equality” and “democracy” in policies and laws. As a country surrounded by mountains on three sides and blocked by a desert, China was dominated by a closed environment and closed culture due to the geographic characteristics and ingrained feudal ideas, despite the great performance in commodity trade such as the Silk Road and Zheng He’s navigation to the western oceans. Confucius and Mencius’ “filial piety culture” had been widespread in China and was normalized by neo-Confucianism in the Song Dynasty. Therefore, an entire set of codes of behaviors for the relations between sovereign and minister and between father and son were formed in China’s long history, with characteristics such as loyalty, filial piety, propriety, righteousness, integrity, and honor. This is the unique culture in China’s feudal society.

The third level is the culture in a narrow sense, referring to the scientific knowledge and education level. For example, people are often asked to fill in the blank of “educational background” in their resumes, and they can fill in university, middle school, primary school, or no education (including illiterate or semi-illiterate status).

The concept of population culture can be discussed upon the definition of population and culture. However, the confusion between the population culture and people’s cultural activities shall be clarified before this discussion. In recent years, the studies on population culture have become more and more popular and therefore greatly deepen the studies and improve the results. However, it is notable that the range of the population culture has increasingly expanded. The reason lies in the confusion between the “population culture” and “people’s culture,” which will adversely affect the understanding of the denotation and connotation of the population culture and the in-depth research. According to archaeologists, the earliest ape-man appeared more than 4 million years ago, while the culture has played an important role in human evolution. As mentioned above, the most evident difference between man and ape is labor, while man produces and uses tools to carry out labor work. This is a cultural behavior, a cultural and psychological behavior dominated by people’s consciousness that distinguishes them from their animal instinct. Humans have been closely related to culture since the very beginning. Humans created culture, and each cultural progress helped humans leaving the animal world and carried humans from the nature world to the civilized human society. Lewis Henry Morgan stated that “each stage of the human society is featured with its own culture and represents a specific way of living” [27]. Karl Marx pointed out that “man’s nature is not the inherent abstraction of an individual, but practically the totality of all social relations” [28]. In this sense, the progress of the human society is the progress of culture. Culture makes man the wisest of all creatures. However, it shall be noted that the man’s or human’s culture reveals the status and role of culture in the development of man or human but does not involve the variation and development of



quantity, quality, and structure of population, so it is not the population culture. If this question is not clarified and every progress is incorporated in the population culture, instead of the man or human culture, then everything in the world was included in the population culture, which is obviously incorrect.

Then, what is the population culture? How are we to define the population culture? The author believes that the population culture refers to the concepts, ethics, moralities, and codes of conduct formed in the population change and development, reflecting the ideology of the population change and development and the material form of the ideology. This definition consists of the following meanings:

Firstly, the “population culture” is established upon the change and development of “population,” instead of the abstract idea of “man” or “human.” The differences and relationships among man, human, and the population have been clarified as above. The population culture emphasizes on the whole of the population but not the abstract individual or human. It is an abstract analysis that man and human rely on cultural progress in their evolution, but it does not explain the variation of the quantity of the whole population or the upgrading of the structure. Only the culture that functions in the change and development of the total population is incorporated in the range of population culture.

Secondly, the “culture” in the “population culture” mainly refers to an ideological reflection, i.e., the concepts, ethics, moralities, and codes of conducts formed in the population change and development, reflected as an ideology in a general sense and the material form of the ideology. A current trend shows that activities related to man of maternal and nonmaterial forms are more and more incorporated in the population culture. Some lists the traffic tools of vehicles and vessels as the population culture because they are needed in the flow and migration of the population. This is unreasonable. If vehicles and vessels are listed as the population culture, then what are the cultures representing the traffic development in different economic ages? The population culture becomes meaningless if all historical and cultural heritages related to man’s activities are incorporated in the population culture. If the narrow sense of culture is applied here, i.e., the humanities and knowledge on natural science, the abundant intention of the ideas generated in the population change, and development cannot be reflected; therefore, the narrow meaning of culture is not applicable here.

Thirdly, the population culture pays close attention to the mutual effect between population and culture, as the culture is generated in the mutual effect of the two. The population culture  $\neq$  population + culture. It is more than the sum total of the two. The essence of the population culture is the interrelation formed between the change and development of population and the change and development of culture, i.e., the essence of the culture of the population change and development. This refers to the comparatively stable ideology generated in the mutual effect between the population change and development and cultural development. The ideology repeatedly appears in the population change and development, gradually forms a regular activity, abstracts the essences of things, collects them as a concept, and becomes the ideology that can dominate people’s activities and exert enough

influence on population change and development. The “population culture” cannot be comprehended as the culture of the “population” but is an indispensable phrase with a complete meaning.

### ***7.3.2 Objects of the Studies on Population Culture***

In view of the definition of the population culture as stated above, the objects of the studies on population culture can be summarized as the cultural phenomena and essences generated in the population change and development, the status and role of the population culture in the population change and development, and the different manifestations and characteristics of the population culture in different times and space, which will be analyzed and specified as below.

#### **7.3.2.1 Cultural Phenomena and Essences Generated in the Population Change and Development**

##### **Cultural Phenomena and Essences Generated in the Population Change**

Population change in demography indicates the variation of the quantity of population, i.e., the increase or decrease of the population quantity. Fundamental factors deciding the population change include the birth, death, and migration of the population.

1. The birth plays a decisive role in population change, since the number of births primarily decides the variation of the population quantity each year. The indicator for the population birth is the birth rate, i.e., the ratio of the number of live births to the total population presented by the unit of each year and ‰. However, the birth rate is only a crude rate. Since its denominator is the total population and the youngster and elderly population in the total population do not belong to the childbearing population, the crude birth rates in different age structures cannot be compared to each other. The age structure has to be standardized before the comparison of the birth rates can be made. Therefore, the fertility rate, total fertility rate, age-specific fertility rate, and lifetime fertility are more adopted in the actual measurement of the fertility of a certain population. At the early stage of human history, people had no knowledge of fertility, so they created fairy tales, including the idea of the gods of love. Regarding the gods of love, the western people will be reminded of Aphrodite, while Chinese people will think of Nuwa. It is said that Nuwa patched up the sky, created people with Earth, and acted as the matchmaker, to enable people to give birth to children. Therefore, people built temples to memorialize her. Each February, young men and women gathered at the Nuwa temple and found their lovers. Nuwa would bring the young couple together according to their wills and let them marry each other and

give birth to children. This legend and custom reflect the childbearing culture in the primitive times, which was a kind of group marriage that adapted to the backward social productivity. Also, in modern society, people do not want to have too many children, but hope to spend more time enjoying life and developing themselves as individuals. This situation suggests a change of people's values and essentially the change of children's cost-benefit along with the social and economic development, as resulted from the increase of children's cost (especially the quality cost) and the decline of children's labor-economic benefit and old-age insurance benefit. Due to the economic, scientific, technological, and social development and the change of children's cost-benefit, different birth conceptions are generated under different productivity levels. In feudal times, people considered that the more children one had, the better off they were; however, in modern times, people pursue fewer, but better, births, because it facilitates their self-development and improves the quality of their children. Some go after the "happy life" and "single life" and do not want to have children. These cultural phenomena reflect the change of the birth conceptions and essentially the change of children's cost-benefit along with social and economic development.

2. Death is another important factor contributing to the variation of the population quantity. Demography places special emphasis on death. The first demographic work was written in 1662 by John Graunt, entitled *Natural and Political Observations Made upon the Bills of Mortality*. The book analyzed the laws of the death distribution based on the churches' death records. The "Death and Life Table" is somewhat considered as the epitome of the demography, which reflects the status of studies on deaths in demography. Similar to the birth rate, the death rate is also a crude rate, so the age structure shall be standardized before the comparison of the death rates. Correspondingly, the age-specific death rate, infant mortality rate, and age-sex specific rate can be employed in the measurement. As mentioned above, it is the decline of the death rate that begins the transfer from high birth rate, high death rate, and low growth rate to high birth rate, low death rate, and high growth rate. Death plays the inversely dynamic role in the variation of population quantity. In other words, based on the same birth rate, the higher death rate brings about slow growth rate; and on the contrary, the lower death rate leads to a higher growth rate. At the early stage of human society, death was regarded as a mysterious phenomenon, the same with birth. Many stories told that people would become fairies after death. People looked everywhere for panaceas to prevent death, including the alchemy in the west and elixirs in China. However, no people, and even no creature, can escape from the natural laws of birth, age, disease, and death. However, people's deaths are distinguished from the deaths of other creatures because people's deaths are affected by the social and economic development and other factors other than the natural laws. For example, the food supply, labor conditions, medical care, public health facilities, and social security directly influence the population death and affect people's life expectancy. Archaeologists have proven that the life expectancy of primitive men was shorter than 20 years, compared to the current world average life expectancy of 63 years, 71 years in developed countries, and 62 years in

developing countries. This is the result of the significant decline of the death rate. As a whole, the population has achieved a great victory in the battle against early deaths and summarized a set of rational understandings (physical or psychological, theoretical or practical), formed a series of conceptions, and formed the culture on death based on certain historical conditions. The culture on population death varies in different regions and nations and reflects the scientific and technological progress of a certain history or age. It shall be particularly noted that the regular extension of life expectancy is in the not-too-distant future, along with the emergence of the life science-led new technological revolution and the phenomenal progress of biotechnology, gene technology, and cloning technology in the twenty-first century. Changes also take place in people's understandings and ideas about deaths. For example, euthanasia was closely guarded a secret in traditional conceptions but has been accepted by some people in modern society; and countries, including Switzerland, have even recognized euthanasia through legal procedures. This is a new breakthrough in the death culture.

3. In addition to birth and death, migration is also an important factor that contributes to the variation of population quantity. Migration refers to the population movement crossing a certain geographical boundary with residence as the goal. Another kind of population movement, which refers to temporary population movement aiming to find jobs or visit relatives or friends instead of settling down, is named as the floating population. According to China's standard, the registered permanent residents can be counted in the migration population. The 5th national population census in China in 2000 regulated that the residents that have settled in a place for more than half a year can be registered as the permanent residents of that place. As explained by the "push-pull theory" of migration in demography, the resultant force of the "pushing force" of the place of outflow and the "pulling force" of the place of inflow decides the direct and capacity of the population migration. However, the temporary population flow (not with residence as the goal) only belongs to the floating population, but not migration population. Without a doubt, economic factor is the most essential for the population migration, in addition to other factors including marriage, religion, clan, social, and cultural factors. Whatever the cause is, the population migration is featured with certain cultural connotations and specific migration culture along with the development of history and times. Ancient China advocated that "while your parents are alive, it is better not to go far away," which reflected the filial piety-centered feudal culture. Since reform and opening up, this traditional concept has been replaced by a large amount of floating population owing to the establishment of the market economy and rapid development of urban and rural economic trade. The population flow sees a rising trend in the future along with the rapid development of national economy and acceleration of the urbanization, despite several rises and falls. People's ideas have also sharply changed. In some villages, the young men that have not gone traveled from the villages are considered as "good for nothing," and they find it difficult to find a mate. Young men in villages, who continuously travel to cities for work, even if they cannot find jobs,

gain a good reputation by staying in cities for a time. The change of the ideas on population migration has given rise to a new ideology and new culture that constantly promotes the population migration and flow.

### Cultural Phenomena and Essences Generated in the Population Development

Development is generally defined as the expansion of the amount and the improvement of the quality of something, including three manifestations: the quantity expansion, quality improvement, and the combination of the quantity expansion and quality improvement. Since the original demography in the statistical sense mainly focuses on the quantity analysis, the expansion of the population quantity is known as the population change instead of population development. The population development mainly refers to the improvement of the population quality and the change of the population structure. As the population development is realized under certain historical conditions and specific social and economic backgrounds, the population development is definitely related to economic and social development.

1. The cultural phenomena and essences in the improvements of population quality. Regarding the factors constituting the population quality, the academic circle mainly holds two different theories: the theory of “two factors” and the theory of “three factors.” “Two factors” refer to the physical and cultural quality, while the “three factors” consist of the mentioned two factors and moral quality. At all ages, people have attached great importance to the physical quality, which can be measured mainly by the infant mortality rate and the life expectancy at birth. According to the United Nations, between 1950 and 1955, the infant mortality rate of the world was 157‰, the rate of developed countries was 59‰, and the rate of developing countries was 180‰, which respectively declined to 60‰, 8‰, and 65‰ between 1995 and 2000 and is estimated to decline to 25‰, 6‰, and 27‰ between 2045 and 2050. During the above-mentioned three periods, China’s infant mortality rate was respectively 195‰, 41‰, and 14‰, with a decline much more rapid than developing countries and the world average level. Correspondingly, the average life expectancy in the three periods was 46.5, 65.0, and 76.0 in the world; 66.2, 74.9, and 82.1 in developed countries; 41.0, 62.9, and 75.0 in developing countries; and 40.8, 69.8, and 79.0 in China. It can be seen that China’s life expectancy development is much more rapid than developing countries and the world average level [29]. The population health and the physical quality of population have improved in the most historically rapid speed since the end of World War II. Based on this situation, the related culture has also made fast progresses. Along with the improvement of the physical quality, the ideas on the physical quality have been developed from previously “banning the marriage of the couple with the same family name” and the understanding of the influence of the expansion of marriage circle on babies’ constitutions to monitoring over birth defects, rational knowledge of biology, and genetic studies and applications of specific technologies.

The pursuit for the cultural quality and moral quality of the population has functioned as the main driving force for the development of human civilization. Each nation has its own history of moral and intellectual education, not to mention China, the country with a 5,000-year-old civilization. As early as in the Spring and Autumn and the Warring States period, Confucius wrote books and established his own theories, practically ran education, advocated equal education without class distinction, and carried out special education against people with degrading quality. Despite different understandings on Confucius' statements, the author agreed that Confucius advocated the combination of the knowledge education and moral education, which has been the basic argument of education in China's feudal society that had lasted for thousands of years. The traditional view emphasized that parents should set good examples by practices for their children and should educate children by studies, as studies were regarded as the way to change the fortune of a family. China employed the "bachelor selection system" since the Han Dynasty and later started the imperial examination system, which developed to the fallen stage of "eight-part essays." Though the imperial examination system had many disadvantages and working classes still found it difficult to change the fortune of their families, it provided scholars with an approach to the upper classes of the society. More importantly, it gave rise to the social climate of respect for teachers and education and emphasis on moral cultivation and the population culture favorable for the improvement of the cultural quality and moral quality of population that played a positive role in the population reproduction in China. By the current age of information revolution, human capitals have become the decisive force for social and economic development. Therefore, the role of the improvement of the population quality has been further outlined, and more importance should be attached to the population quality culture.

2. The cultural phenomena and essences in the variation of population structure. The population structure is also critical for the change of the population quantity and improvement of quality. The population structure consists of the natural structures, including the age structure and sex structure of population, and the nonnatural structures, including the national structure, race structure, family structure, urban and rural structure, and regional distribution structure of population. The population structure results from the quantity change and quality improvement of population and conversely influences and restricts the quantity change and quality improvement of the population. For example, the age and sex structure of the population results from the population birth, death, and migration and meanwhile decides the growth momentum of the population. In demography, the age structure can be divided into the young (growing), adult (steady), and old (reducing) types. For another example, the urban and rural structure of population is the result of the natural and mechanical population change; and meanwhile, the urbanization degree greatly affects the population change and development due to the differences of urban and rural populations in birth rate, death rate, life expectancy, and educational level. The population urbanization will result in the decline of the fertility rate and the

improvement of the cultural quality of population. The cultural phenomena gradually formed in the long-term population development reflect the essence of population development.

### **7.3.2.2 Status and Essence of the Population Culture in Population Change and Development**

Once formed in the population change and development, the population culture becomes comparatively independent and will dominate and guide the population change and development. It is essential for the population production and reproduction, as determined by its role as a standard and a compulsory regulation.

#### Population Culture as a Standard

Population culture, or any integral part of population culture, has its own denotation and connotation, defining the good and evil, the beauty and ugliness, and providing what to do and what not to do. In this way, the population culture functions as a standard and a compulsory regulation, which can be summarized or integrated as concepts, ethics, and moralities and even can be presented as religions that deify these concepts, ethics, and moralities. In China's traditional culture, Confucius advocated the idea of "the more children, the better"; Mencius stated that "there are three unfilial acts; bearing no descendant is by far the most unforgivable" and declared "man is superior to woman"; the new Confucianism in the Song Dynasty promoted the ideas, including three forms of obedience (in ancient China, a woman was required to obey her father before marriage, then her husband during married life, and her sons in widowhood) and four virtues (fidelity, physical charm, propriety in speech, and efficiency in needle work). These ideas had restricted people's thoughts in the long history and regulated people's births. The population production and reproduction has been carried out according to these regulations. The idea of "the more children, the better," on one hand, has affected the ruling class' policy decisions and has been reflected in the land and taxation policies even without clear policies and, on the other hand, has influenced on the birth behaviors of the people and has given rise to the long-lasting cultural pursuance of "a large number of family members" in the form of traditional concepts. In contrast with the eastern culture, the western world incorporates childbirths in the analysis of commodities and market economy and proves the similarities between children and other commodities that people shall pay a certain cost, including the variable and fixed cost (or quantity and quality cost) for the children and then obtain the economic and mental benefits from the children. The western world is dominated by the childbearing culture under the principle of commodity exchange and market economy, the economic interest-based theory of children's cost, and benefit and corresponding cultural concept.

The population culture functions as the standard mainly through public opinions and administrative regulations. Public opinions create a thinking atmosphere to

formulate people's rules of conduct. For example, owing to traditional concepts of marriage and childbirth, pregnancy before marriage was not allowed and was criticized as an immorality; based on the system of arranged marriages, women had to marry the men chosen by their parents and matchmakers and had no right to divorce their husband. However, fundamental changes have taken place. Many states have formulated laws to protect unmarried mothers and single mothers, and women have the right to marry the person of their own choice and enjoy the freedom of marriage and divorce. The public opinions are guiding and monitoring the transmission of concepts and maintaining certain cultural ideologies. The ideologies, including thoughts, opinions, and moralities, can only be normalized under the guidance and monitoring of the correct public opinions. It is the same with population culture. The population culture that dominates society can guide people's concepts of population change and development; create certain public opinions; monitor any idea, morality, concept, and behavior that violate the dominating population culture; and ensure the dominance of the mainstream population culture.

Also, the role of administrative regulation in maintaining the population culture cannot be ignored. As mentioned above, the population culture belongs to a kind of ideology. Therefore, the propaganda, education, criticism, and remonstrance shall firstly be employed to maintain and promote the normalized population culture and eradicate any population culture that violates the normalized population culture. Secondly, the administrative measures can also be adopted to maintain a kind of population culture if necessary. For example, in order to help the rehabilitation of the people, build up the strength of the state, and meet the needs of wars, many dynasties in China's history had adopted policies to encourage population growth, including ample rewards to families of multiple children and forcing people at the marriage age to get married, otherwise inflicting penalties on them. Currently, China also promotes the state basic policy of family planning from two aspects. On one hand, China publicizes the reasons for the execution of population control and family planning, enhances people's awareness, and places emphasis on publicity and education, contraception, and regular service; and on the other hand, the central government has released the *Law on Population and Family Planning of the People's Republic of China*, and all provinces, autonomous regions, and municipalities directly under the central government stipulate specific implementing measures in order to cultivate the new population culture through laws and regulations. Developed countries, including Western European and Northern European countries, and Japan have adopted the policies to improve the fertility rate and encourage the population growth in order to overcome the problems incurred by the fewer children and population aging and maintain the population culture that reflects the commodity and market economy.

### Population Culture Under Different Historical Conditions

The population culture is generated based on the social development and social progress under certain historical conditions. Different social productivities give rise



to different population cultures. The academic circle holds different opinions on the division of the ages of social development. According to different tools utilized in production and the basic characteristics of population culture, the economic ages can be divided into the primitive society, agricultural society, industrial society, and modern society, while each age is featured with its own population culture. It is necessary to discover the standard and symbol for the division of population culture in different ages, in order to scientifically distinguish the population culture in different historical ages. The author believes that the only standard to divide the population culture of different historical ages is the essential characteristic of the change and development of population culture, with the goal, form, and adjustment method of the population reproduction as the symbol of the population culture in different historical ages. The population culture in different historical ages can be summarized as below, according to the standard and symbol listed above:

1. Population culture of the primitive society. According to the traditional theory of evolution, humans had created the primitive culture when they distinguished themselves from the animal world 4 million years ago. However, the influence of the culture at the earliest time on population production was a longtime coming. The sexual promiscuity based on the group marriage had no clear goal of population production, not to mention the adjustment of the birth, death, and other factors of population production. The essence of sexual promiscuity was the continuance of life, and the primitive population culture was the natural biological culture. However, along with the development of primitive men's labors and brains and humans' conscious activities, people started to choose the method of population production that enabled stronger physical and intellectual strength. Primitive society developed from the matriarchal clan to paternal clan and from the primary form of group marriage, i.e., the consanguineous marriage system, to the higher form of "punaluan" exogamous marriage system. The process recorded the simple but constantly evolving population culture in the primitive society. The reproduction worship was one of the important manifestations of the fertility culture of primitive people, reflecting the mystery generated upon primitive people's inability to explain the fertility phenomenon. However, the reproduction worship did not demonstrate primitive people's understanding of the goal of population reproduction and their choice in methods of marriage and childbirth, so it cannot conclude the essence of fertility. In the history of development of the primitive human society, the population production started the transfer from the natural behavior of creatures to purposeful behavior and the transfer from natural marriage and childbirth to progressive marriage and childbirth, but it was essentially the natural population culture.
2. Population culture of the agricultural society. The agricultural production had attained great development after three rounds of great social divisions of labor. The population culture in this age can be summarized as "the more sons, the better," owing to the demands of labors and military. In the farming age, agriculture, as the mainstay of the whole social economy, was established on a self-sufficient natural economy, with hand tools as the basic tools of production. The technologies of the

hand tools can never be compared to the technologies of the machine industry. Therefore, the production mainly relies on labors' physical strength due to the rude tools, so people prefer to have more children. In addition, in the agricultural society, the aged were supported by families, so the families of more children were favorable for the support of the elderly population. Due to the congenital advantages of men in labors and patrilineal families, people in this age preferred sons, especially in eastern countries such as China. In addition to labor and military demands, the idea of "the more sons, the better" reflected the view of "raising children for help in old age" and sex discrimination and represented the concepts and culture of the whole society.

3. Population culture in the industrial society. The new epoch of human development was marked by the industrial revolution in the mid-eighteenth century. After the steam mill replaced the manual mill, the sewing machine replaced the hand-spinning wheel, and finally the machine industry had dominated the society; the traditional industrialization had been completed, the social and economic development mainly relying on natural capitals had been transferred to dependence on productive capitals, the requirements mainly on labors' physical strength had been transferred to the requirements on both physical and intellectual strengths, and the population quality started to gain more attention. The industrial society of a highly developed commodity economy was dominated by the principle of equal value in commodity exchange, and the appreciation of exchangeable value was also applied in the population culture. People unconsciously weighed the population production with the principle of commodity economy and gave rise to the theory of the children's cost-benefit. At the initial stage of industrialization, more labors were needed due to the low-level technical composition, which stimulated the rise of the fertility rate; and then along with the increasing level of technical composition, the machines had replaced some functions of workers, and people started to pursue the quality of children rather than the quantity, leading to the decline of the fertility rate. Therefore, the population reproduction of high birth rate, low death rate, and high growth rate had been transferred to low birth rate, low death rate, and low growth rate. In order to adjust the fertility rate, society mainly influenced on children's cost-benefit and families' birth decision through the interest guidance. Therefore, the goal, method, and adjustment method for population production and reproduction in the industrial society were dominated by the population culture of commodity production and intergeneration exchange based on the principle of interest selection and commodity exchange.
4. Population culture in modern society. After a 200-year development, the traditional industrial society had reached its peak and started to transfer to the postindustrial age, with the microelectronics technology as the predecessor and new materials, new energies, aerospace, and marine technologies as the symbol. At the end of the twentieth century, the technological revolution has been upgraded, with life sciences as the leading subject and gene technology, nanometer technology, and biotechnology as the main content. The new technological revolution will exert a stronger and profounder shock to the population culture

and will possibly give rise to the brand new population culture in the age of the new technological revolution. Based on the development of life sciences, the test-tube babies will change the original conditions for childbirth, and the cloning technology will provide the technical support to human cloning. If the two technologies were applied in the population reproduction, the original concept of population production and reproduction will definitely change. In the twenty-first century, featured with a highly modernized economy, science, technology, and society, it is commonly acknowledged that the aim of population production is to facilitate the more rapid development of population, economy, and society and pursue the sustainable development of population, resources, and environment. With human orientation as the core, the sustainable development aims to satisfy people's needs for all-around development, including the physical, psychological, and development needs. Among the four major capitals, including the natural capitals, productive capitals, human capitals, and social capitals, the human capitals play the decisive role. The theoretical system of human-oriented sustainable development consists of the theory of all-around optimum population, theory of the resources scarcity, theory of ecological system, theory of overall economic benefits, and theory of the coordinated social development, and the strategy of the sustainable development incorporates the population production and reproduction. Based on the overall framework of sustainable development, the population culture of modern society is vividly portrayed, which is featured with the human-oriented population culture restoring the origin of humans.

### ***7.3.3 Meanings of the Studies on Population Culture***

The population development reflects the pursuit of the goal of human activities, while the pursuit constitutes culture on the ideological level. The population development culture has been staged in China for thousands of years. People work and study hard from generation to generation to pursue certain goals. The population culture in the current age and the studies on population culture are given new meanings, including theoretical and practical meanings as stated below.

#### **7.3.3.1 Theoretical Meanings of Studies on Population Culture**

Since the publication of *Natural and Political Observations Made upon the Bills of Mortality* by John Graunt in 1662, the demography has developed along two directions, the statistical and empirical demography, giving rise to different theories and schools of thought. The demography has seen vigorous activities on an unprecedented scale and has been firmly established as an independent subject among the sciences after the step into the twentieth century. The interdisciplinary researches have attained great development. Demography has crossed with economics, sociology, statistics, geography, history, ethnology, ecology, mathematics, and medicine

and generated new boundary science and integrated science. Culture is often involved in the above researches, especially the interdisciplinary researches between demography and sociology, history, ethnology, and religions. Therefore, demography is closely linked with culturology. It shall be noted that the theory of children's cost-benefit proposed by H. Leibenstein and explained by G. S. Becker, R. A. Easterline, and J. C. Caldwell has significantly promoted the development of population economics, clarified the economic factors contributing to the population production and reproduction and population change and development from the roots, and founded the microscopic population economics. However, in addition to their different opinions within this theory, the ideas they agreed upon also failed to explain some phenomena of world population change or of population change in different states or regions. People attributed this situation to different cultures, nations, races, and historical traditions in different states or regions. For example, some countries of developed economies are undergoing a higher fertility rate, while some countries of underdeveloped economies are experiencing the decline of fertility rate, which cannot be explained by the theory of children's cost-benefit. For another example, the sex ratio at birth and the sex ratio of the total population in most countries and regions of the world are beyond 100, while the ratios in only 20–30 countries are lower than 100, including most of them coming from countries and regions believing in Islam. People also attributed this situation to cultural differences. However, no deeper research has been made. The backward research on culture has greatly impeded the in-depth research on demography.

China is the country with the largest population of the world and one of the countries with a great ancient civilization. As the important symbol of the country of great ancient civilizations, the rich historical and cultural accumulations in China's 5,000-year civilized history have profoundly affected the population change and development. Right after the beginning of the twentieth century, the May Fourth Movement of epoch-making significance had taken place in China in 1919, unveiling the curtain of the new anti-imperialist and anti-feudal culture. The age of a new socialist culture has been ushered in since the foundation of the People's Republic of China in 1949. After reform and opening up, China has increasingly integrated itself with the world market, enhanced its cultural exchange with foreign countries, and broadened Chinese people's vision. Particularly, China has adopted the basic state policy of family planning in order to control the growth of population quantity and began research on many practical problems in the population change and development from the cultural perspective. In the early 1980s, China had already advocated the only-child-for-one-couple policy when the government started to attach importance to the variation of the birth conception, proposed the cultural problems for the basic state policy, and held the International Symposium of Population and Cultural Development in the late 1980s and early 1990s. The departments of family and planning of various places have promoted the propaganda on fewer and better births in many forms, publicized the basic population theories, and further understood the role of culture in population reproduction. The interdisciplinary researches on population and culture have made great progress. A batch of influential works has been published, which has enhanced the in-depth research on this subject.

The studies on population culture in China no longer link the studies on population phenomena with culture but start to develop the studies as a new subject based on the breakthroughs in the theory of knowledge through the circulation of “practices–theories–practices.” Great practices will necessarily give rise to great theories. The population culture is generated based on the joint efforts of theoretical workers and practical workers and will carry on and further enrich the traditional demographic theory. Still, unremitting efforts shall be made to perfect the theories.

### 7.3.3.2 Practical Meanings of Studies on Population Culture

The above demonstrates that the population culture results from the implementation and development of the basic state policy of family planning, so the primary meaning of the studies on population culture is to serve the population undertakings and the practices of family planning. Secondly, since the population culture provides the cultural perspective for the all-around solution to the population problems in China, in addition to the family planning, the practical meaning of the studies on population culture also incorporates the all-around solution to the population problems in China, including the control of population quantity, improvement of population quality, and adjustment of population structure. The three aspects will be further discussed as below.

The population culture of the agricultural society, with “the more sons, the better” as the representative idea, should be discarded for the sake of the control of population quantity. As mentioned above, in agricultural society with hand tools as the production tools and labors’ physical strength as the main productive forces, multiple births were people’s natural choices, since the number of births related to the family economy and continuance and expansion of the family. The self-sufficient agricultural society has lasted for several thousand years, so the birth conception of “the more sons, the better” had great influence on policy decisions made by the feudal governing classes and the birth behaviors of the masses of people. The early marriage, early and multiple births, and big families had been people’s common pursuit. Evidently, this old population culture should be abandoned, and a modern population culture shall be established in order to control the population growth and practically promote the family planning. The modern population culture shall be established upon industrialization, informatization, and globalization, and the development of social productivity shall mainly rely on the quality instead of the quantity of labors. The human capital, among the four major capitals, shall place the essential role. Correspondingly, the people-oriented birth conception shall be established to pursue the optimum number of births that is favorable for development of families, countries, and nations. The population culture of fewer births should be advocated in countries of overpopulation, including China.

Specific analysis shall be conducted on the improvement of the population quality. The traditional agricultural civilization placed emphasis on the education and the cultivation of children. However, the ancient idea of “study for an officer position” needs an in-depth analysis. At the initial stage of the imperial examination system,

the “study for officer position” played a positive role, as it enabled the government to appoint able men as the officers according to their talents, but in the later stage, when the imperial examination system suffered from favoritism, irregularities, and purchase of officer positions with money and developed to the “eight-part essay” that was separated from practice, the “study for officer position” started to play a negative role and impeded development. However, the imperial examination had provided ordinary people with an approach to the upper classes in the feudal society and gave poor people a gleam of hope to “change the family status,” though the approach was full of problems and setbacks. Beyond a doubt, the imperial examination system had played a part in improving the population quality, especially the cultural quality. Though the old system of “study for officer position” is not applied nowadays, China still advocates for people with knowledge, a favorable educational background, and a higher quality being a government official and serving people based on the previous spirit. More importantly, the traditional custom has established a favorable atmosphere of respect of knowledge, talents, teachers, and education. It meets the needs of the all-around social development to promote the excellent traditional culture. However, instead of copying the ancient education, China shall promote the education on all-around development, including the moral, intellectual, and physical education, which adapts to the requirements of times and vigorously improves the cultural quality and all-around development of population.

The adjustment of the population structure also requires the population culture that accords to the requirements of the age. The culture on the age structure among the natural structures of population has experienced great changes. The agricultural society was dominated by the fine traditions of respect to the aged and the culture of pastoral family love in a large family. Along with the development of commodity and market economy after the industrial revolution, the family love started to fade out and the principle of the equivalent exchange between people had been outlined. The elderly began to retreat into the background due to the constant scientific and technological progresses, and the respect to the aged was replaced by the sex discrimination, leading to the great change of the population culture. Regarding the culture of the sex structure of the population, the sex discrimination had been ingrained in the agricultural society. Based on the theories of Confucius, Mencius, Dong Zhongshu in the Han Dynasty, and the new Confucianism, women had become a mere instrument for the production of children in the Song Dynasty and a servant to their husbands and had been excluded from social, economic, political, and cultural life. Sex discrimination is still playing a part, as demonstrated by the increasing sex ratio since the 1980s. Both practical and theoretical factors contribute to the growth of the sex ratio and the sex preference, but the fundamental solution is to change people’s conceptions. The traditional population culture of “man is superior to woman” shall be transferred to modern population culture of “equality between man and woman in the current age.”

The cultures of nonnatural structures of the population mainly consist of the culture of urban and rural structure, national structure, regional distribution structure, and occupational structure of population. The studies on these population cultures are of great significance for the adjustment of the population structure.

The traditional agricultural society advocated “staying at home when parents are alive” and kept peasants in hometown with the land and the culture of the natural economy. After the industrial revolution, the commodity and market economy had greatly developed. Along with the growing flow of materials and wealth, the floating population, especially the peasants coming to the cities and working for urban industry and commerce, has significantly increased, giving rise to the new conception of the modern population culture of transfer of the surplus rural population to cities and towns. The traditional agricultural society divided occupations into different classes and defined the superior and inferior classes of jobs and held the cultural conception of “scholar as the top of society.” The modern society denies occupational discrimination and advocated the equality of different jobs, since different jobs only resulted from their different functions in the social labor division. However, the original idea of ranks of occupations has not been completely discarded, so the equality of different jobs has not been realized. The “white collar” and “blue collar” (and the “gray collar” between the two) are no longer in different classes, and the occupational discrimination has mostly disappeared. However, the complete elimination of discrimination has not been realized. It still takes time to establish a brand new culture on population occupations. The objective differences among occupations, including the labor conditions, proficiency degrees, labor efficiency, and incomes, lay the foundation for the formation of the culture on population occupations. However, the role of cultural guidance shall not be underestimated. The study on the culture of the occupational structure of the population will open up the road for the rational employment structure of the population. The situation is similar for cultures of other population structures. The studies on these cultures create the necessary conditions to realize the all-around optimum population through the adjustments of the population structure.

The practical meaning of the study on population culture shall also incorporate its meaning for building a well-off society in an all-around way. The well-off society was first mentioned in the *Book of Songs* in ancient China. The well-off society is distinguished from China’s pursuit of the great harmony throughout history. The great-harmony society refers to a society of completely ideal politics, economy, culture, and society based on the community of property, but the well-off society refers to a society of developed, but not high-level, politics, economy, culture, and society based on private properties, i.e., a society satisfying people’s needs of food and clothing, but is not that prosperous. In 1979, Deng Xiaoping had proposed the goal of quadrupling GDP within 20 years, which has been basically realized by 2000. However, as indicated by the report of the Sixteenth National Party Congress, China is still in a low level, as an incomplete and unevenly developed well-off society, so the goal of building a well-off society in an all-around way was put forward. Therefore, some scholars regarded the current well-off society as the “post-well-off” society. The population development, the control of population quantity, improvement of population quality, and adjustment of population structure are indispensable for the realization of the goals proposed in the Sixteenth National Party Congress, including quadrupling GDP, significantly improving the comprehensive national strength and international competitiveness; perfecting the socialist democracy and

legislation; improving the ideological, scientific, cultural, and physical quality of the nation; forming a learning society in which all the people will learn or even pursue lifelong education; facilitating the all-around development of people; enhancing the ability of sustainable development; and encouraging the whole society onto a path to civilized development featuring the growth of production, an affluent life, and a sound ecosystem. As mentioned above, the construction of modern population culture is an important and difficult task toward realizing the goal of population development for building a well-off society in an all-around way. The construction of a new socialist population culture constitutes an integral part of the construction of a well-off society in an all-around way.

## 7.4 Past, Present, and Future of the Development of Population Science in China<sup>6</sup>

The development of any science has its own historical process. For population science in China, the clear understanding of its past will enable the clear understanding of its present; based on the clear understanding of its past and present, its future can be clearly predicted. Therefore, it is necessary to link the past and present of population science with its future and conduct historical observations and analysis in order to relate to and discuss on the development trend of the population science in the future and pursue the new development of China's population science in the twenty-first century.

### 7.4.1 *Three Upsurges for the Development of Population Science in the Twentieth Century*

According to scientists, the Earth is about 4.7 billion years old; the latest archaeological finding suggests that human beings have existed for more than 4 million years. Ancient ideologists showed early concerns on population phenomena. In ancient Greece, Plato (427 B.C.–347 B.C.) in his book *Republic* and Aristotle (384 B.C.–322 B.C.) in his book *Politics* had firstly proposed the idea of the optimum population. In the Spring and Autumn and Warring States period in China, when a hundred schools of thought contended, the dispute between the large size and the small size of the people also appeared among Confucius, Mencius, and Han Feizi. The *Natural and Political Observations Made upon the Bills of Mortality* written by John Graunt, recognized as the father of demography, was published in 1662. Since then, demography has stood out as an independent subject, and the population science began the development in “double track.” In one aspect, the

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population science has developed in the statistical sense based on John Graunt's studies, and demography has been gradually improved and perfected as an independent subject; and for another aspect, demography has developed in its interdisciplinary researches with other subjects and formed some interdisciplinary subjects.

The studies in the former aspect give rise to the idea of normalized demography. Demography has given clear definitions and conducted normalized studies on its study objects and methods, including the birth, death, and migration of population, the age, sex, national, urban and rural, regional, marriage, and family structures of population as well as the population and development. Moreover, it has also proposed and explained a series of basic theories, such as the theory of population change, theory of steady population, theory of optimum population, and theory of children's cost-benefit and made demography the science that can never be replaced by other subjects.

Studies in the latter aspect gradually evolve into some interdisciplinary subjects. From all respects, population is playing the role as the subject in social and economic development and is therefore attracting scientists' attention. They study population phenomena based on different subject applications and different methods and put forward and expound on various theories, including the optimum population for economy; optimum population for strength; the model for the rational selection of marginal children; the economic model for the population migration, population growth, and limited land capacity; the "population explosion" and exhaustion of resources, population pressure, and ecological crisis; and the limits to growth. These studies have reached certain results in certain subjects upon the analysis of the population change and formed population economics, population sociology, population geography, nationality demography, biological demography, medical demography, and environmental demography.

The development of population studies and population science has won a place in the extensive and profound cultures and sciences of Chinese nations. Many eastern-style schools of thought, with regard to population, from various schools in the Spring and Autumn and Warring States period to Hong Liangji in Qing Dynasty, have had a brilliant, splendid, long history. Even preceding Thomas Malthus, Hong Liangji proposed and expounded on the idea of population growth that was more rapid than the food growth. These ideas exerted certain influence on the formation and development of China's population theory in the later stage. In the twentieth century, China's population science has ushered in a new stage of development, and three surges in the development process deserve special attention.

The first surge emerged in the 1920s and 1930s, when the population control doctrine appeared. As affected by western demography, Ma Yinchu published the *Mathematics to Calculate Population* in 1920, indicating economists' concern on population science. The most notable aspect in this period was the rise of the doctrine on population growth among the sociological school. The *Theory of China's Population* by Chen Changheng, published in 1918, unveiled the curtain of the surge of population researches, followed by Chen Changheng's *Three People's Principles and Population Policies*, Xu Shilian's *Population Problems of China and Outline of the Population Theory*, and Chen Da starting the *Population Supplement*

of the *Beijing Morning Papers* and publishing the *Population Problems* in 1934. These articles explained Thomas Malthus' population theory, clarified the basic idea of overpopulation, proposed the "moderate population density," advocated "restricting population quantity and improving population quality," and taken stop-gap and radical measures in population control and contraception. The stop-gap measures included developing agriculture and industry, increasing employment, allowing population migration, improving public health, and advocating better pre-natal and post-natal care; and the radical measures referred to advocating late marriage, breaking the old traditional thoughts, and carrying out worldwide birth control. It can be seen that they had been greatly influenced by Thomas Malthus' population theory, and some thought highly of Thomas Malthus. However, their idea of "restricting population quantity" and "improving population quality" had pointed out the key to population problems. This surge of population studies had pioneered the development of population science in China, transmitted the western demography, and addressed the root of China's population problems.

The second surge was the debate on population problems in the 1950s. After its foundation in 1949, the People's Republic of China had rapidly completed the transformation of the population reproduction from high birth rate, high death rate, and low growth rate to high birth rate, low death rate, and high growth rate. The doctrine on population growth among the sociological school, on one hand, criticized some wrong ideas in their population theories in the 1920s and 1930s and clarified their differences with the population theory as proposed by Thomas Malthus and, on the other hand, continued to expound their ideas of population restriction and developed their theory of "moderate population density." Fei Xiaotong brought forth that "the moderate size of population can be calculated based on various conditions for each period of each society. The population growth exceeding the moderate number would impede social development." Sun Benwen considered the most proper population size for China as 800 million. The representative in this debate was Mr. Ma Yinchu, the economist, demographer, and educationist who was the president of Beijing University at that time. He published the *New Population Theory* in 1957. In addition to the *New Population Theory*, his relevant articles, speeches, and answers to journalists' questions expressed his basic ideas on the population problem. Firstly, regarding the estimation of the population growth, he predicted that the population growth rate had been greatly accelerated according to the data from the population census in 1953, which was the starting point for the *New Population Theory*. Secondly, he analyzed the contradictions incurred by the population overgrowth from the perspective of population economics, including the contradictions between the population overgrowth and the acceleration of capital accumulations, improvement of the labor productivity, supply of raw materials for industry, improvements of people's living standard, and the development of scientific undertakings. Finally, he proposed three suggestions for the solution to population problems: Firstly, further assess the base population number and incorporate the population growth in the 2nd and 3rd Five-Year Plan; secondly, vigorously promote propaganda, break the traditional feudal concepts, revise the Law of Marriage, advocate late marriage and birth, give awards for

families giving birth to two children, collect taxes on families giving birth to a third child, collect a heavier tax on families giving birth to a fourth child, and utilize these taxes as the award to maintain the financial balance; and thirdly, control the birth mainly through contraception and disagree with induced abortion. The main ideas of Ma Yinchu's *New Population Theory* listed as above were seriously criticized by most of the main newspapers and magazines in China. After that, the studies on population science had become a "forbidden region" for a certain period.

The third surge is the all-around development since the 1970s. Under the circumstances of the rapid population growth in the 1960s and the increasingly prominent population problem, the studies on population science have been restored and developed to meet the needs of the government to vigorously control the population growth and practically strengthen the family planning since the 1970s. As restricted by historical conditions, the studies on population science primarily found the background of Marxism and then proposed and expounded the "planned economy determinism," i.e., the population production should be carried out according to plan since the socialist national economy was developed in proportion according to said plans. The theoretical foundation for the family planning was therefore built. However, along with the increasingly intensified reform and opening up and the presentation of the goal of the market economy reform, the "planned economy determinism" could no longer scientifically explain the practical situation. Though as a planned economy, the socialist market economy is still featured with the basic characteristics of a market economy, including legal entities as the market subjects, market orientation of the factors flow, indirect macro-control, and legislation of economic operation. The planning or adjustment of the market economy mainly relied on economic levers such as taxation and prices. It is substantially different to the previous planned economy, which featured a high degree of centralism and unification. The theory of two kinds of production was put forward later, i.e., the population production should adapt to the production of material goods, which could be summarized as "economic development and population control" based on practices in China. In addition to economic factors that function as the foundation, ideological, cultural, national, and social factors also exert influence on childbirth. With the proposal of sustainable development and increasingly in-depth research, the "two kinds of production" cannot meet the practices, so the "three kinds of production" and "four kinds of production" have been put forward and expounded in succession. The solution to the population problem is essentially the sustainable development of population, resources, environment, economy, and society. The studies on population science with the decline of the fertility rate as the "main body" have been significantly promoted.

As an outstanding feature of the surge, the empirical studies with the decline of fertility rate as the "main body" have been carried out nationwide at an unprecedented scale and spurred the studies on population quality and population structure. As entrusted by the Secretariat of the Central Committee, the General Office of CPC Central Committee held five successive rounds of symposiums on population problems from March to May 1980. The symposiums mainly discussed on the trend and goal of future population change and development, and birth policies and

problems may be incurred by the only-child policy, including the aging population structure, labor shortage, decline of intelligence, counter elimination of the population quality, and urban and rural structure, and the family structure of “four grandparents, two parents, and one child.” Based on discussions and the search of information, the symposiums had submitted a report to the Secretariat of the Central Committee. As required by leaders, the author left the names of individuals at the end of the report and wrote the *Appendix* on the above questions as the theoretical support. Many parts of the report have been published after being added or revised, though they only regard primary researches. The population control, quality improvement, and structure adjustment have become the areas of focus in population studies after the symposiums as well as the main contents of the empirical studies in the 1980s and 1990s. As a country of the largest population size, China has provided the studies on population science with a wide stage, owing to its rich population practices and producing a great batch of high-quality works in the recent two or three decades. For example, *China in 2000 – Population and Employment* and *Quantitative Research on the Population Systems and Applications* won the third prize of the National Scientific and Technological Progresses; *On the Sustainable Development of Population and National Economy* won the “Five Ones” Project Award; and *China’s Elderly Population (Population, Economy, and Society)* won the Award for Excellent Achievements of National Social Science Funds and the National Book Award. The Award for Excellent Achievements on Population Science of China, held respectively in 1994, 1998, and 2002, has cited 4 special honor awards, 83 first prizes, 190 second prizes, and additional third prizes and merit prizes. This has reflected the booming development of the population science in China and research results’ role as the theoretical support in the solution to practical problems, especially demonstrating the decline of the fertility rate in an earlier stage and the stability of the low birth rate in the later stage as well as the key role in the strategy of sustainable development of population, economy, society, resources, and environment, which cannot be replaced by any other subject.

While the empirical studies have achieved a large number of achievements, the theoretical studies on demography have also attained great progresses. Since 1980, the United Nations Fund for Population Activities had provided aid for scientific research and education for 15 consecutive years and sent more than a hundred visiting scholars and students abroad to China. It had played a great role in the cultivation of Chinese talents in demography and disseminated the western demographic theories in China. Many scholars conducted research based on practices in China, carried out academic innovation based on the experiences learned from foreign countries, and improved and developed some demographic theoretical methods, including the application of automation in population estimation; the proposal and explanation of the theory of additional social cost-benefit of children; application of parity progression; reference to and innovations of some models of birth, marriage, and families; the proposal and explanation of the population change, and stabilization of the low fertility rate in China. The Chinese demographic circle has understood the main theories and methods of western population science and innovated some of them. However, the author believes that most personnel engaged in the

study and education of population science in the 1970s and 1980s were transferred from majors of economics, sociology, and statistics, as China did not set up the major of demography previously, so their foundation of demographic studies was weak. This situation had influenced the depth of empirical research to a certain extent. Generally, the population science after reform and opening up has seen unprecedented development, as one of the subjects of the most rapid development in China. China's demography, in some aspects, has even reached the international-leading level.

### ***7.4.2 Adjustments and Development in Recent Years***

After two decades of great development, the population science in China experienced historical adjustments in the late 1990s. How are the adjustments and development of population science to be assessed in this period? Two basic understandings are stated as below.

#### **7.4.2.1 Necessary and Significant Adjustments**

Development occurs in a wavelike manner, instead of going up or down in a straight line. The rise and fall does not result from people's subjective assumptions but depends on the inherent laws governing development. The external conditions often function as the turning point for the rise and fall. The aid to China provided by the United Nations Fund for Population Activities from 1980 to 1995 had greatly promoted the development of population science in China. Within 15 years, 40–50 population research institutes had been established in colleges, universities, and at the Chinese Academy of Social Sciences, and a total of more than 100 different types of demography research and education organizations have been established, including those set up by the Party school and relevant governmental departments, suggesting the great momentum of development; and in this period, China's demography has seen a significant increase of students studying abroad, frequent international exchange, a great number of achievements in scientific researches, and fierce academic discussions, as admired by many other subjects. However, the United Nations Fund for Population Activities announced the halt of aid to scientific research and education on the demography of China in 1996. The change to the external environment for development brought about a new turning point for the development of population science. Firstly, the amount of scientific research and education institutes of demography has reduced, and a few units have even ceased relevant organizations. Secondly, some personnel related to scientific research and education have gone into business or stayed in foreign countries. Thirdly, fewer scientific research results were made compared to the 1980s and early 1990s, and the number of "classics" also reduced. Fourthly, the national and international academic activities have reduced. The academic circle holds different

opinions on these phenomena in the development of population science in China. Some regard them as the deterioration of the subject, some consider them as normal situations, and some regard them as aspects of the development. The latter two ideas are close in meaning, but only vary in the degree of positivity; some regard this phenomenon as normal occurrences, while others regard this as development.

The author suggests not simply reaching a conclusion for these phenomena in the development of population science in China in recent years. Practical explanation and analysis that adapt to the laws of the construction and development of demography shall be conducted based on investigations and researches from the perspective of the frontier of the times and subject development.

Firstly, clarify the “deteriorated” area of the discipline. In 2000, the National Planning Office of Philosophy and Social Science designed the unified plan for an overall investigation over the development of all subjects since the 9th Five-Year Plan. According to the investigation results, though the scientific research and education institutes on demography have reduced or even closed, the number of reduction was small and the number of revocation was even smaller. Moreover, only a few related scholars went into business or stayed abroad and refused to return; and the quantity of scientific research results and academic activities were reduced only by a limited degree. Particularly, major scientific demography research institutes have been retained, and the core scholars of scientific research and education have been retained and even developed. At the Awards of National Population Science in 1998 and 2002, especially in 2002, the judges generally found it difficult to determine the awards for either the first and second prize because the quality of the applied scientific research results has significantly improved. Small-scale academic activities have been reduced by a large margin, but the large-scale academic activities have not been evidently reduced. More importance shall be attached to the effect and influence of the academic activities instead of the organization of activities.

Secondly, fully understand the reason for the reduction or “deterioration.” Since the implementation of the market economy system, it is common for people to go into business or change jobs owing to the changes of value orientations, including some people previously engaged in social sciences. Therefore, social sciences had experienced a downturn within a certain period. Though the demography is an interdisciplinary subject, the social sciences at the ebb would definitely influence demography, since the previous demographic researches were made in the field of social sciences. The ebb of demography in China came later than other subjects of social sciences, because of the government’s emphasis on the subject and the financial support and information convenience in the scientific researches, education, academic activities, and international academic exchanges based on aid from the United Nations Fund for Population Activities in the 15 years after 1980. As the aid from the United Nations was suddenly stopped since the 9th Five-Year Plan, the downturn that other subjects of social sciences had experienced inevitably took place in demography. Actually, the rapid expansion of scientific research and education institutes of demography was very much a “bubble” due to the aid of United Nations in the 1980s and early 1990s. Some institutes were built before the contents and personnel were confirmed, so it was natural to see its “deterioration.” Two problems

need to be clarified here. Firstly, how many demographic research and education institutes are needed in China? How many research and education personnel are needed? Though China is the country with the largest population in the world, the quantity of institutes and personnel shall be optimized. With a population equal to 1/10 of China's population, Japan had only three demography institutes in the 1980s and early 1990s. Owing to the rapid completion of population change and increasingly intensive population aging, the number of research institutes of demography dropped to 1.5 in the late 1990s, i.e., one institute of demography in Nihon University and the National Institute of Population and Social Security Research of the Ministry of Health and Welfare which can only be counted as a half institute. The National Institute of Population of South Korea transferred to the research on labor employment, social security, and population aging after the fertility rate had dropped to a low level. As seen from the ratio between the number of institutes of demography and population, the problem of China's institutes of demography does not lie in the quantity, since the total number of institutes of demography in different types reaches about 100, but lies in the quality and structure. After China's fertility rate has declined to the low level, the main topic of the population studies is no longer the demonstration of the necessity to adopt family planning as the state basic policy but other profound population problems. Secondly, in terms of the quality of scientific research results and academic activities, the role of the demographic research results is more related to the quality of the results instead of the quantity; and the influence of academic activities is also more related to the quality instead of the quantity of activities. One influential academic symposium is much better than ten meaningless meetings. The quality of China's population science, instead of the quantity, has become the key to overall development in terms of the subject construction, academic results, and attractions to talents.

Thirdly, identify the essence of the reduction or "deterioration." Is the reduction or "deterioration" the abnormal decline leading to ruin or simply a part of the development in the wavelike manner and the adjustment of the excessive development in the previous time? The author believes the latter is the correct answer. As mentioned above, the expansion of institutes and personnel on demographic research was a kind of "bubble." The expansion of the institutes of demography without scientific demonstration led to seriously repeated research institutes, topics, and results and a low input-output performance and impeded the improvement of the research level and development of the subject construction. From this aspect, the problem should be solved by certain adjustments but without the cancellation of UN's aid to China. After the foundation of the People's Republic of China, the national economy had developed rapidly and steadily in the 1st Five-Year Plan, which was a "golden age" of China's development. However, against the Great Leap Forward in 1958 and the following three difficult years, China was forced to employ economic adjustments. The implementation of the principle of "readjustment, consolidation, filling out, and raising standards" brought in the restoration and development of the national economy in the 1960s. After the counterrevolutionary factions of Lin Biao and Jiang Qing were abolished in 1976, the Foreign Great Leap that advocated "going all out and advancing quickly" gained ground in China. It was the Third Plenary Session of

the 11th Central Committee that restored the ideological principle of seeking truth, confirmed the correct guideline of reform and opening up, and vigorously promoted the adjustment of the national economy, which guaranteed the rapid, constant, and healthy economic development in the following two decades. It can be seen that the adjustment after a great leap of development is inevitable, even necessary and beneficial. Instead of impeding development, the quantity and structural adjustment constitutes the necessary preparation for new development. This law can be applied to the development of the national economy and the development of scientific undertakings, including population science. China's basic national conditions, such as its large population size and prominent population problems, have exerted a profound influence over the overall social and economic development; therefore, a large team of scientific research shall be maintained to strengthen relevant researches from all aspects. However, the size of the research team shall be limited to what is reasonable and necessary. More importantly, when the quantity and scale reach a certain degree, the adjustment focusing on the quality improvement is definitely necessary. The adjustment will be positive and favorable for development, instead of negative and unfavorable for development.

#### **7.4.2.2 New Development of Population Science Since the Ninth Five-Year Plan**

In the 9th Five-Year Plan period, when China's population science was in the "period of adjustment" according to the author, the research on population science and population undertakings attained obvious progress and development.

Firstly, the research on population science has attained new progress and development. In terms of the empirical study, China's fertility rate had lowered below the replacement level in this period. The primary problem is the rational positioning of the strategy of population growth control, whether to continue to lower the fertility rate or stabilize the low fertility rate. After meticulous textual research, relevant studies have proposed to stabilize the low fertility rate based on practices and provided powerful theoretical support to the population and family planning in the new historical stage. In the academic world, the discussion of "post-population change" has promoted the innovation of theoretical researches; the studies on sustainable development have gained new breakthroughs; conducted pioneering research on the sustainable development of population among the researches on the population, resources, environment, and economic and social development; expounded the human-oriented theoretical system of sustainable development; combined the control of population quantity, improvement of population quality, and adjustment of population structure; placed emphasis on the quantity control; and made the corresponding decision selection; the studies on the population aging and the elderly population have focused on macroscopic research; studied on problems from the perspective of communities and families; researched into the development trend of the old-age insurance in urban and rural areas; established the social security for old-age support; enhanced the studies on the influence of population aging on



economic, scientific, technological, and social development; and become one of the supporting points for the development strategy in the twenty-first century; the studies on the variation and employment of working age population combined the population migration, population flow, and population urbanization and proposed the guideline of reform and corresponding policies based on the strategy of “three-step development” against the new situation and problems showing up after reform and opening up; the studies on population quality have been upgraded to the rational allocation of the resources for market economy, i.e., the optimum integration of the natural, productive, human, and social capitals, placed the human capitals as the key factor, and highly valued the improvement of the physical quality and cultural quality of population; the studies on childbearing health, based on a great deal of social investigations, have introduced international concepts, defined the connotation of these concepts, gained experiences from western study methods, gradually formed China’s own theoretical methods, and attained considerable progress in the studies on the demography of health; and, in addition, the studies on the assessment of the effect of family planning, the studies on the sex ratio, studies on the female population, studies on nationality population, studies on the development of population census data, and studies on population culture have all attained great achievements and published a collection of high-quality works. The works that won the 3rd Award for Excellent Achievements have exerted great influence and favorable social benefits, including the papers of *Problems of China’s Population Policy in the 1950s and Reassessment*, *View the Whole-Life Fertility from Recent Fertility Behaviors*, *Macroscopic View of the Sustainable Development of Population, Resources and Environment and Decision Making*, *Definition and Connotation Research of the Demography of Health*, and *China’s Family Structure in Mid and Late 18th Century*, the monographs of the *Sustainable Development of Population, Resources and Environment*, *Studies on Current Population Economic Problems in China*, *Studies on Trans-Provincial Population Migration in China*, *China’s Population and Sustainable Development – Program for Population and Families in Two Regions*, *Studies on the Gender Differences of Chinese Children and Practices* and the *General History of China’s Population* and the research reports of the *Report on the Control and Management System of China’s Population and Family Planning*, *Studies on the Employment in Urban Areas During the Transformation of the Economic System*, *Studies on the Old-Age Security in Villages and the Endowment Insurance* and *Studies on the Current Status of the Population and Education of Adolescence in Middle School in Zhejiang Province and the Counter-Measures*, etc.

In terms of the subject construction and basic theoretical studies, the National Planning Office of Philosophy and Social Science set up two projects in the 9th Five-Year Plan period, including the “studies on the subject system of demography” and the “studies on the modern population theories” and completed the monographs respectively for the two projects. The National People’s Congress, the Chinese People’s Political Consultative Conference (CPPCC), Chinese Academy of Sciences, and the Chinese Academy of Social Sciences jointly organized the large research project of “Collectives of Chinese Modern Sciences,” incorporating more than 600 subjects of natural and social sciences, including demography. The first

draft has been completed currently. It is noteworthy that the interdisciplinary subjects have attained rapid development in this period of adjustment, with relevant works such as the *Social Gerontology* and the *Reader of the Strategy of Sustainable Development* being published.

Secondly, the team of science and education has been stabilized and the quality has been improved. In the two decades after reform and opening up, some scientific research personnel went into business and some stayed abroad and refused to return, which influenced the stability and development of the team of scientific research and education. However, most of the talents actually stayed in China and in the field of demography, while the above scenario only took up a few personnel. Additionally, many people returned to China in the period of adjustment after they completed their studies abroad. The team of demography has been basically stabilized after years of setbacks, and the research level has significantly improved. More importantly, based on the rapid development of interdisciplinary subjects, quite a few universities and colleges of science and engineering have been established and rapidly developed the majors of social sciences, including demography, population, resource, and environmental economics, as well as the science of administration, including the public administration and population administration. Though the size of the current team of demographic research and education is smaller than the team in the 1980s, the scholars of this team are more stable in professional attitude and are more willing to spend a long time on the population undertaking, regardless of the popularity of the major. Meanwhile, more and more people return to China after completion of studies abroad and step into the demography through interdisciplinary subjects, which greatly improves the quality of the team and the recognition of the team in the international academic world. This is very necessary and beneficial for China, especially after China's admission to the World Trade Organization.

### ***7.4.3 Development Trend of Population Science in the Future***

What is the current status of China's population science after the adjustments since the 9th Five-Year Plan period? The author believes that the adjustment is reaching completion, with the following symbols:

Firstly, the research focus has been clarified. The studies on population science in China since the 1970s have focused on the decline of the fertility rate. Since the 9th Five-Year Plan, the fertility rate has been successfully lowered and the study's focus has turned to the stabilization of the low fertility level, in order to achieve the sustainable development between the population and resources, environment, economy, and society and incorporate the solution to the population problems in the sustainable development. As a matter of fact, in the twenty-first century, China's studies on population science, especially the empirical studies on the population problem, have transferred the focus to the stabilization of the low fertility rate and incorporated the solution to the population problem in the strategy of sustainable development. However, after the stabilization of the low fertility rate, the long-term

decline of the fertility rate will lead to a series of problems in population, economy, and society, especially the problems of the aging population; employment of the working age population, population flow, and urbanization; cultural contradictions in marriage, families, and relation between generations; regional distribution of population and the gap between the east and west; and population health and human capitals. The in-depth research on these problems will become intense in the early twenty-first century.

Secondly, the research team has been stabilized. During the period of adjustment, most scholars who wanted to go into business or go abroad and did not want to continue with a career in demographic science had already left. Of course, it is impossible and unnecessary to pursue one job for one's entire life under the market economy, but the comparatively stable team for the scientific research is a necessary condition. After the setbacks and tests for 6 or 7 years, the core personnel and basic team of demography have been stabilized, laying a good foundation for future development.

Thirdly, the research characteristics have begun to be formed. The expansion of the scientific research institutes in the third surge of the development of demography since the 1980s had led to the repeated establishments of institutes owing to stimulation by foreign aid. These repeated institutes shared similar scales, approximate research directions and problems, similar low research levels, and similar research results. This situation was unfavorable for the construction and development of demography and resulted in fewer high-level scientific research results and fewer talents of scientific research that could not adapt to the needs of in-depth researches. Some scientific research departments have reviewed these problems during the adjustment period since the 9th Five-Year Plan and started to correspondingly reposition and adjust the research direction, talent structure, subject setting, and selection of key subjects, in order to enable the subjects to give full play to their advantages and create the necessary conditions to gradually form the research characteristics.

Generally, the adjustments on the research direction, research team, and research institutes have made some actual effect in recent years, other than the unbalanced development. Some research institutes enjoy their own characteristics and see rapid development based on these positive adjustments, while some institutes that have not realized the necessities for adjustments have stood still and developed slowly or even declined. Against these circumstances, the current development of population science has encountered new situations and tasks. The author believes that it still takes a certain amount of time to complete the adjustments. It is self-evident that adjustments refer to the conscious adjustment of the research direction, research focus, scale of the research institute, and the talent structure based on the combination of the scientific research and education. Two changes shall be realized in the adjustment, including the change of the research direction and focus and the change of the research method and area.

The first is the change of the research direction and focus. As mentioned above, the general focus of population studies has been fundamentally transferred from the decline of the fertility rate to the stabilization of the low fertility rate. In a

sense, more problems need to be studied for stabilizing the low fertility rate than lowering the fertility rate, including how to define the low fertility rate in demography, how to scientifically estimate the “rebound momentum” of the current fertility rate, how to stabilize the low fertility rate, the policy selection to stabilize the low fertility rate, the relation between the stabilization of the low fertility rate and the optimum population, and the goal of and approach to the optimum population. The research topic will focus on the stabilization of the low fertility rate in a certain period. However, the author does not consider it necessary to require various institutes to research on this topic but advocates institutes to study on other issues related to this topic, particularly the important problems of population and the relation between population and economic and social development under the low fertility rate. The main problems include the population aging under the low fertility rate, which involves the problem of the elderly population, including the support to the elderly and the influence of population aging on economic, scientific, technological, and social development and its role in realizing the strategy of the “three-step development” in the twenty-first century; the variation of the sex structure of population under the low fertility rate, especially the sex ratio at birth; the variation of the working age population, involving the rational employment and improvement of the labor productivity; the childbirth health, improvement of the population quality at birth, improvement of the educational quality of population, and effective promotion of the accumulations of human capitals; the regional distribution of population, population flow and migration, population problems in the development of the west, and the population problems of the minority nationalities; and the urban and rural population management and population urbanization under the “dual economic” structure. The above problems have been studied to different degrees, and the current studies shall be focused on the new characteristics and solutions under the low fertility rate.

The second is the change of the research method and area. It is evident that the research ideas and methods purely in demography, along with the change of the research direction and focus, are too narrow. The research ideas and methods shall be broadened to seek for changes. As mentioned above, either the decline of the fertility rate or the stabilization of the low fertility rate fundamentally aim to seek for the sustainable development of the population, resources, environment, economy, and society and create a favorable environment for the existence and development of humans. Along with the constant growth of the world and Chinese population in the first half of the twenty-first century and the increasing population pressure on resources and environment, the control of population quantity, improvement of population quality, and adjustment of population structure shall be incorporated in the overall strategy of sustainable development. After World War II, interdisciplinary subjects have developed at the highest speed. As an interdisciplinary subject, demography will see more rapid development in the future. However, the premise lies in that the formal demography shall be further consolidated and developed. Without corresponding consolidation and development of demography, demography might be absorbed and incorporated by other subjects.

The review and discussion of the past, present, and future of the development of demography aims to summarize the past, make the present clear, and look into the future. The development of China's population science is, without a doubt, a difficult process. In view of the development of demography in recent times, the efforts of several generations have been made to transmit and develop modern population science in China in the twentieth century. In particular, the development of demography has endured many rises and falls after 1949 (the foundation of New China). The current population science enjoys the advantage of a solid foundation but also suffers various difficulties, including different opinions on how to make adjustments. In China, the development of social sciences, including the population science, requires the government to give greater importance to it, to strengthen the plan, and increase the environment. However, the development of any subject shall not completely rely on the government but shall place more emphasis on market demands under the market economy. As a basic starting point for the adjustment of the subject, the establishments of the major of demography, cultivation of talents, and the development size shall take the market needs into consideration. The key of the subject is the talent. In view of the current talent structure of the academic circle, more importance shall be attached to the cultivation of young talents to ensure the constant growth of the subject. The author feels strongly about this problem. Among the 18 members of the China Population Society from its foundation in 1979, only six are still alive. As a century of information and globalization, the twenty-first century will see rapid development of sciences and technologies. A sufficient space is also given to the development of population science. As a developing country with the largest population size and the most rapid economic growth, China provides a rare chance for the development of population science upon the practices of population and development. The population science will welcome greater development in the twenty-first century and make greater contributions to the solution to population problems based on in-depth practices and practical researches.

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