

China's "Three-Child" Policy and Welfare Reform

--- Based on analysis of seventh census data

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Submitted to
Central European University
Departments of Economics

In partial fulfillment of the requirements for the degree of
Master of Economic policy in Global market

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Vienna, Austria
05.2022

Abstract

In November 2020, China conducted the world's largest census. The census includes the quantity, quality, structure, and distribution of the national population, which also provides an important basis for China's current social and economic development plan.

The data of the seventh census show that some recent changes have taken place in China's population in the past decade. It is reflected in the following aspects: the growth rate of population gradually slows down; deep aging of population age structure; The proportion of labor force population began to decline. To solve the problem of population aging and low fertility, China has implemented the "three-child policy", which is not only a hot topic of general concern in all sectors of society but also a major issue related to the sustainable development of the economy, society, and family.

Some scholars believe that China has entered the "low fertility trap", so they continue to call on the government to implement measures to promote fertility. Six years ago, the "two-child policy" was implemented, but the effect is not as expected. In 2021, China introduced the "three child policy" and supporting measures to create reproductive welfare for the people and increase the birth population. In this context, this paper analyzes the reasons why the "two-child policy" did not achieve population growth by using the data of the seventh population census. Then the paper explains the characteristics of the current population structure and further predicts the trend of the "three-child policy". In addition, by comparing the social background and implementation of fertility policy in East Asia, Nordic countries, and the United States,

the paper analyzes the relationship between fertility policy and social culture, child-rearing, female employment, and gender equality. We found that, first, China's total fertility rate has reached an extremely low level in the past 20 years. Despite 10 years of implementation of the "two-child policy", China's low population growth has not improved. The article then breaks down the fertility data demographically and finds that the most influential factor is the delay in marriage among young women. In addition to the problems exposed by the maternity insurance system, the article argues that gender structure inequality and the incomplete welfare system are one of the reasons why women delay childbearing. Finally, the forecast data of the "three-child policy" shows that the impact of the birth policy is becoming less and less. Economic conditions, social development, and traditional culture all affect fertility rates in different regions. Therefore, it will be a huge challenge to improve the fertility rate through the three-child policy.

By analyzing the data, comparing the policies of different countries, and exploring different social cultures, the paper finally gives policy suggestions for raising the fertility rate and improving the "three-child policy". It argues that the birth policy should be formulated to construct compatible birth incentive policy groups, provide quality early childhood care services, and strengthen employment fairness and anti-discrimination protections for women. In addition, coordinating work and family policies; improving labor market structure and flexibility; strengthening subsidies and social security for low-income families; improving childcare policies and facilities supply is also a key measure to protect women's labor and reproductive rights.

Keywords: “three-child policy”, fertility rate, maternity policy

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Chapter 1 Introduction

In 2021, China's National Bureau of Statistics released the main data results of the seventh national census, indicating that China's fertility rate has further decreased, and the total fertility rate has reached 1.3, which has also fallen into the extremely low fertility level classified by the international academic community¹. Census data show that the degree of social aging is becoming more and more serious, but the working-age population has decreased significantly. The number of people aged 60 and above exceeds the number of children aged 14 for the first time. China's population is undergoing a major turning point. Therefore, in May of 2021, China's fertility policy has changed from a “two-child policy” to a “three-child policy”². At the same time, the policy emphasizes the improvement and implementation of supporting policies and measures.

The long-term balanced development of the population is an important issue facing China at present. In the 1970s, due to the rapid population growth, the family planning policy was implemented to strictly control population growth. However, the reduction in fertility levels has also led to accelerated population aging and the gradual disappearance of the demographic dividend. The decline in the predominance of China's working-age population in the total population has led to a shortage of labor force and increased dependency rates, putting great pressure on society and young

¹ State Council Information Office. Answers to reporters' questions at the press conference on the main data results of the seventh national census. <http://www.stats.gov>.

² In December 2013, China implemented the two-child policy (If one of the couples is the only child, they can have a second baby); in October 2015, China implemented the universal two-child policy (all couples can have a second baby); in May 2021, China implemented the "three-child policy".

people. Since the 1990s, China's total fertility rate has continued to decline, and some scholars even say that China has entered a "low fertility trap". Facing the population problem, raising the fertility level is the most effective way to achieve balanced population development in the short term. Since 2013, China has continuously adjusted its fertility policy to alleviate the social problems of aging but without achieving the goal of raising the birth rate. In December 2013, China implemented a "two-child policy", whereby if one of the couples is the only child, they can have a second baby. In October 2015, China implemented a comprehensive "two-child policy", which means that all couples can have a second baby. In May 2021, in response to an aging population, China implemented a "three-child policy" and provided subsidies to all families with a third child. The results of the seventh census show that China is only 0.5% away from deep aging. Therefore, understanding the reasons behind the cold of the "two-child policy" is of great significance to improving the population fertility policy and promoting the reform of fertility supporting policies. At present, the research on the effects and influencing factors of the comprehensive "two-child policy" is relatively rich, but the views are not consistent. Some scholars believe that China is facing the crisis of the "low fertility trap"(Wu, 2019). Some scholars deny the "birth trap" and believe that the "two-child policy" was hampered is due to factors such as imperfect birth policy and unreasonable cost-sharing mechanism (Jin, 2014). From the micro perspective, most of the discussion of fertility demand is directly from the direct cost of fertility, ignoring the impact of the inertia and opportunity cost of fertility policy, that is, the direct and indirect costs of education, time, energy, and health lost by parents

to raise a new child without changing the supporting environment of fertility and only changing the policy constraints.

Due to the deepening of various social problems, the Chinese government officially adopted the "three child policy" in 2021. This policy will be a new challenge to change China's population growth model and timely response to various social problems. However, the experience of various countries shows that it is much simpler to limit fertility than to encourage fertility (Kan, 2018). Similarly, the implementation of the "three-child" policy may also face a series of obstacles. Only by improving supporting measures and being committed to solving problems can the policy be implemented smoothly.

The purpose of this paper is to use the data of the seventh population census to analyze the changes in China's fertility level and its demographic factors, and to explain the impact of the "two-child policy" on fertility. It then further explores the prospect of low fertility under the three-child policy and how to improve supporting facilities and welfare policies while growing the population.

First, in the second section, the article will use different scholars' existing analyses of the current situation of fertility and the cold of the "two-child policy". In response to changes in the population situation, China has constantly adjusted its family planning policy. From 2011 to 2016, the "two-child policy" gradually expanded the scope of the family to achieve population growth. Academia and policy circles expect that the two-child policy will have a significant impact on China's population development trend, the trend of fertility reward and assistance policies, population structure, total

population, and population aging (Jin, 2014). However, the actual data show that the implementation of the two-child policy has not brought a significant increase in the birth population. Therefore, in this section, the article will use the existing literature to discuss the factors leading to the "failure" of the existing policies and to provide ideas and background for this paper from different angles.

The size, structure, and development trend of the population have a direct impact on the development trend of China's economy and society. In section 3, the paper will first introduce the basic situation of China's population from four aspects and analyze the development characteristics of China's population. Secondly, at a time when China's population development is facing a major historic turn, a series of new trends have also emerged in China's national conditions. Next, the article will show the latest demographic characteristics through the data results of the seventh census. Finally, the section will also introduce the current situation and existing problems of the existing policies (mainly the maternity insurance system) under the background of the "three child policy", to establish a detailed background survey for the estimation of data and the proposal of policies.

In the fourth section, the article first uses the "seven Census" data to estimate the recent fertility level and change trend. We will make several different fertility estimates. One is to estimate the total fertility rate by using the functional relationship between the birth rate and the total fertility rate, and the other is to estimate it according to the conventional calculation method of the total fertility rate. This method will calculate the number of women and births of different ages to obtain the fertility rate and total

fertility rate of different ages. The demographic factors of recent changes in China's fertility rate are analyzed using the rate decomposition method. The data required for decomposition include age-specific fertility rate, age-specific married proportion, and age-specific married fertility rate. The decomposition of the change in total fertility rate uses the prediction method of age-specific fertility rate year by year under different combinations of several factors. When discussing the Population Prospects of the “three-child policy”, we use the population prediction method. This method is based on the statistics of the past population and estimates the population by assuming that the future population trend will still develop according to the same function curve. The base year population data of the population forecast is from the 2017 national registered residence statistics by age population data of the Ministry of public security. First calculate to 2020, making it the same as the total population during the "seven universal suffrage", and then predict the future.

National policy is an external force to regulate the population size and structure. However, reproductive behavior is also affected by social and cultural traditions, family, and gender concepts, supporting social welfare policies, and other factors. Therefore, when the construction of supporting measures is about to begin, it is necessary to study the Fertility Policies and their implementation effects in some countries under different social and cultural systems, to provide reference opinions for improving the total fertility rate, family development ability, and people's all-around development. In the fifth section, the paper studies the Fertility Policies of some countries under three different social and cultural systems: East Asian culture, Nordic welfare system, and

developed capitalism, and summarizes the characteristics of their fertility policies and supporting measures, to better provide theoretical and evidence support for the policy implementation of the conclusion.

In the sixth section, the article will first draw reflections from the cases provided by other developed countries in the previous section and discusses three relationships of fertility policy: the relationship between fertility policy and social culture; the relationship between maternity policy and female employment and gender equality; the relationship between fertility policy and family child-rearing. Then reflect on the shortcomings and limitations of the current fertility policy and discuss a new perspective for the implementation of family policy.

Finally, the article will provide policy suggestions to improve the low fertility rate and promote the implementation of the "three child policy" from different angles. This section mainly discusses how to build a fertility-friendly society and pays attention to the adaptability and effectiveness of local fertility policies. In addition, it also proposes to strengthen family development support and guarantee women's employment equity and anti-discrimination, such as reducing the cost of childbirth, parenting, and education, and reducing the opportunity cost paid by women.

Chapter 2 Literature review

Fertility policy is now the focus of academic discussion, so the implementation results and experience exchange around the "two-child policy" are also very rich. The article will feedback on the results of the "two-child policy" to the literature overview. The relevant literature mainly covers three aspects: first, the discussion on the influencing factors of fertility demand and the reasons for the "cold" of the comprehensive two-child policy; second, the theoretical and empirical analysis of fertility cost-benefit in economics; third, the impact of fertility policy on fertility cost-benefit and fertility demand. In addition, scholars from all aspects of society have also begun to pay attention to the problems encountered in the process of policy implementation. Mu prospectively discussed the advantages and disadvantages of the "three child policy" from the perspective of population fertility optimization (Mu, 2021). Li put forward effective plans to promote the implementation of the policy from the perspective of the evolution of the personal income tax and maternity insurance system (Li, 2021). Feng pointed out that we should strengthen the construction of a new fertility culture to promote the positive transformation of family fertility decision-making from less to more (Feng, 2021).

2.1 Influencing factors of fertility demand

Fertility demand determines the future development trend of the population, and there are abundant studies on the influencing factors of individual fertility willingness. Research shows that women's reproductive needs are affected by various aspects,

including economic and social development, institutional and cultural factors, and the most important are family and individual needs. Macro factors such as the urbanization process (Vollrath, 2009), traditional fertility culture (Li, 2019), family separation system (Li, 2015), regional education quality (Ding, 2017), and micro factors such as individual education years, labor participation rate, physical condition, registered residence, and other income levels (Wang, 2019) are the key factors affecting women's fertility behavior. In addition, the impact of fertility on income is also an important consideration (Li, 2016). With the increasing social pressure, mothers' time and energy cannot meet work and family at the same time, which forces women to make a trade-off between them. The "work family" conflict will reduce individuals' reproductive intentions, and the increase in women's labor participation rate will reduce the fertility rate (Sasser, 2005). With the introduction of the two-child policy, China's actual birth population is lower than the expected population. Whether China falls into a low fertility trap has once again attracted the attention of academic and policy circles. Chen and Miao (2015) discussed the economic and social factors of the cold of the two-child policy from the perspective of sociology, including the wrong population base, inconsistent statistical caliber, improper prediction methods, cultural lag, imperfect fertility policy, and the adjustment of local government policies. Xue and Shi (2015) believed that under the background of the gradual control of family planning policy, the mismatch between urban and rural registered residence structure and fertility willingness of women of childbearing age inhibited the second childbirth, resulting in the "cold" of the "single two-child" birth policy. Jin et al. (2018) used text analysis and

quasi-experimental analysis to demonstrate theoretically and empirically that the change in fertility cost leads to the overall decline of willing fertility levels in urban and rural areas.

2.2 Fertility cost-benefit and fertility demand

From the perspective of economics, reproductive demand is determined by reproductive costs and rights, and reproductive behavior is the result of individuals' pursuit of maximizing reproductive utility. There are many classic pieces of the economic literature on the analysis of fertility cost-benefit, and a relatively perfect theoretical system has been formed. In recent years, more and more parents make fertility decisions on their cost-utility. Becker (1960) first materialized children into a kind of commodity and obtained benefits or utility by paying time and money, that is, the cost of giving birth to children includes the sum of the monetary limit needed to give birth and raise children and the present value of time shadow price. Subsequently, many studies on the micro labor market found that the wage income of childbearing women is lower than that of nonchildbearing women, which is called "wage punishment for childbirth" (Waldfogel, 1998, Anderson et al., 2002). This negative effect has the characteristics of long-term and is as high as 18% in the year of childbirth (Bloom et al., 2009). ADDA et al. (2017) analyzed the occupational cost of women giving birth to children and found that the wage income and work experience of non-childbearing women were significantly higher than those of childbearing women. The cost of having a child exceeds 40% of the mother's income throughout the life cycle. Wang (2017)

used survey data to calculate the basic cost of having two children. He found that the increasing cost of childbirth has become the main reason for the low willingness of families to have children. Among them, the basic cost of having two children in Guangzhou, Chongqing, and Wuhan is more than 700000 yuan, and the cost of education accounts for the highest of all fertility costs. In another paper, Long (2018) divided fertility costs into family costs and social costs. He believed that the decline in family costs would help to improve fertility. In addition, fertility not only directly affects women's material conditions such as job opportunities, career choices, and wages, but also affects women's non-material conditions such as health, happiness index, and independence consciousness. In addition, some scholars have found that childbirth will affect women's material and non-material conditions, including job opportunities, wages, health, and thought. Joshi et al (2013) found that reducing the number of births helps to improve women's physical health; the impact of reproductive behavior on women's bodies will increase with the increase of age. The health welfare of elderly women with more children is often relatively low. Canning et al (2012) also found that the decline of reproductive behavior can help improve women's income and health. Therefore, with the improvement of economic level, women consciously have fewer or no children out of consideration of cherishing their posts, increasing income, and increasing personal freedom of life. Bongaarts (1999) interpreted the inhibition of this competitive preference on reproductive behavior as competitive preference.

2.3 Fertility policy and the cost-benefit of fertility

Fertility cost is not only related to occupation, education level, and family income but also has an intimate relationship with different national fertility policies (Cigno, 1996, McDonald, 2006). Moreover, different fertility policies will affect the fertility rate. Work-family-friendly policies contribute to keeping a country's high fertility rate, while the family policy of traditional gender division of labor is counted against the improvement of a country's fertility rate (Kalwij, 2010). Wu (2016) summarized the relationship between family policies to encourage fertility in European countries and the fertility rate and found that child development support, work-family balance, and family welfare policies have reduced the fertility cost of married women in different aspects, which is conducive to increasing the fertility rate. China's unbalanced fertility cost-sharing mechanism is an important factor leading to the low fertility rate, and families undertake most of the cost of childbirth and education. The implementation of China's "one-child policy" has reduced the fertility rate in the past 30 years. The family planning policy implemented in China since 1979 has reduced the total fertility rate from about 6.0 in the 1960s to 1.7 ~ 1.82 in the 1990s, with the highest fertility rate of 1.28 from 2010 to 2015. The family planning policy has significantly reduced the fertility rate of married women and improved women's economic and social welfare (Miller et al., 2016). Lu (2016) assessed the impact of fertility policy on women's social and family status using a double difference strategy. He found that the fertility policy had a positive effect on gender education equality, but there was no significant change in the gender wage gap caused by the attitude toward the division of labor within the

family and gender discrimination. Therefore, if the comprehensive two-child policy is implemented under the macro background of gender concept, social discrimination, and corresponding protection of women's rights and interests and child development support, if married women increase the number of births, they will "abandon" the economic and social benefits they receive under the family planning policy, and there is an opportunity cost of childbirth. In other words, under the background of keeping other conditions unchanged, the improvement of economic and social welfare of married women brought by the family planning policy is equivalent to the opportunity cost of rising fertility under the comprehensive two-child policy. To identify this opportunity cost, based on the family planning policy, given the individual and regional characteristics of women, this paper studies the impact of the decline of fertility on the economic and social welfare of married women, and explains the opportunity cost faced by women if they improve fertility from the side.

Chapter 3 Basic situation of China's population and existing policy dilemma

3.1 Basic situation and characteristics of China's population

3.1.1 The growth rate has slowed down significantly

The large population is the basic condition and characteristic of contemporary China's population. In 2019, the total population of the Chinese Mainland was 14000.5 million, ranking first in the world. Although the total population is still huge, the growth rate of the population is very slow. Some experts predict that there may even be negative or zero growth in the future. The long-term negative population growth means that the population continues to shrink and even the prospect of the nation-state will be affected. This effect may be positive in the early stages of fertility decline. However, with time, its negative impact will become more and more obvious. For example, negative population growth will make the future society a high-risk society, and the problems of social labor supply, pension, loss of independence, and so on will be more prominent. Considering the "low fertility trap" in Japan, South Korea, and other countries, China's low fertility level has attracted great attention from the government and society

3.1.2 Uneven spatial distribution of population

In 1935, Hu Huanyong, an economic geographer, proposed the famous "Heihe-Tengchong line" as the boundary of China's population spatial pattern. This line intuitively reflects the East-West differences in China's population geographical distribution. According to the statistical analysis of data in 2000, the southeast side of

this line accounts for more than 40% of the land area, but it gathers 90% of the country's population and GDP. The population and economic differences between the East and the west of China are very wide. Since 1950, the spatial distribution pattern of China's population has not changed greatly. It has always been more in the southeast and less in the northwest. Moreover, the differences in population, economic and social levels on both sides even tend to widen further.

3.1.3 High degree of population aging

Population aging is one of the most prominent problems in Chinese society. In the process of population transformation, the decline of fertility level leads to the reduction of the proportion of children and adolescents, while the change in mortality leads to the extension of life expectancy, which jointly promotes the structural change of population aging. In 2016, China's aging level was 16.7%, which is expected to soon surpass Japan as the country with the highest degree of aging. The high degree of aging in China is mainly caused by the following two reasons. First, is the implementation of a family planning policy. The one-child policy is based on controlling the birth rate and limiting population growth. In the more than 30 years since the implementation of the policy, China has lost about 400 million children, which is equivalent to the total population of Europe. The implementation of the family planning policy has directly led to the rapid decline of the proportion of China's children's population in the total population in a short time, and the number of the elderly population is rising rapidly. Second, the rapid economic development, especially the progress of medical technology, has continuously enhanced people's ability to resist natural disasters and diseases, and the

average life expectancy has been significantly prolonged. In 1949, the life expectancy of China's population was 35 years, and it will be extended to 76.34 years by 2015. The extension of population life expectancy leads to the increase of the absolute number of the elderly population. The elderly live longer and longer, so the population is also increasing. At present, China's elderly population accounts for 20% of the world's elderly population, making it the country with the largest number of elderly people in the world. Over the past 20 years, China's population over 65 has increased by an average of 0.2 percentage points per year. Since the 1980s, the population aging rate has been increasing, and its annual growth rate is faster than the world average. The rapid aging of the population leads to an increase in the elderly dependency coefficient and the increase in the social burden. In addition, the elderly labor force has a poor ability to accept new knowledge, science, and technology, and relatively weak adaptability to emerging industries, which is not conducive to new product development and technological innovation of enterprises.

3.1.4 Large scale the floating population; the process of urbanization is fast

At the beginning of 2000, Stiglitz, the Nobel Laureate in economics, once predicted that in the 21st century, there will be two things that will have a great impact on human society. One is the new technological revolution led by the United States and the other one is the Urbanization Movement Rising in China. At the beginning of 1980, the number of migrant workers in China was less than 2 million. By 2010, this figure has exceeded 200 million, which shows that the growth rate of the floating population is very fast. With many population movements, China's urbanization process is also

accelerating. The green paper on population and labor points out that "according to the development rate before 2017, the urbanization level of China's population can reach 65% in another year. " Through the international urbanization stage division measurement standard (S-curve model), China has entered the later stage of population urbanization development. The United Nations predicts that the current stage of China's population urbanization will end before 2030. From 2031, China will enter the final stage of development, which is expected to reach 80% in 2050.

3.2 Population and fertility data from the seventh census

3.2.1 the growth rate of the population scale decreased

The results of the seventh national census show that by December 2020, China's total population was about 1.41 billion. Compared with 2010, this figure increased by 72 million with an increase of 5% and an average annual growth rate of 0.5%. However, it is 0.04 percent lower than the average growth rate in the past 20 years. From 1950 to the 1970s, before the implementation of the "one-child policy", China's population accelerated when the mortality rate was ahead of the decline of the birth rate. The annual average growth rate increased from 1.59% from 1953 to 1964 to 2.09% from 1964 to 1982. The family planning policy was implemented in the mid-1970s. Under the situation that the birth rate accelerated and the low mortality rate remained stable, the population growth slowed down gradually, and the annual average growth rate decreased from 2.09% in 1982 to 1.07% in 2000. The average growth rate in 2010 was 0.57%, halving every 10 years. Although China's population continues to grow, the

growth rate continues to shrink and the growth rate slows down significantly, showing a low-speed inertial growth trend.

3.2.2 Extremely low fertility rate

The results of the seventh census show that in 2020, the fertility rate of women of childbearing age in China reached a very low level which was only 1.3. At present, the emergence of extremely low fertility levels is mainly affected by three factors. First, the scale of women of childbearing age has accelerated. In 2011, the number of women of childbearing aged 15-49 in China reached a peak of 385 million and entered the downward channel, and the proportion of women of childbearing age in the period of vigorous fertility gradually decreased. In 2019, the number of women of childbearing age in China decreased by more than 8 million compared with 2011. Secondly, is the delay of childbearing age. According to the calculation of the National Bureau of Statistics, the age of Chinese women of childbearing age increased by an average of 3.8 years from 1990 to 2018. Third, the level of fertility willingness of young people continues to decline. Another data survey shows that the current number of willing children of Chinese women of childbearing age is 1.8, which is far lower than the level of 2.5-2.6 in Japan, South Korea, and other western countries with low fertility rates, and the younger the age, the lower the level of fertility intention. With the continuous decline of the intervention ability of fertility policy, economic and cultural factors will gradually occupy the dominant position affecting fertility.

3.3 Current situation and existing problems of the maternity insurance system under the background of the “three child policy”

3.3.1 The development of the maternity insurance system is unbalanced

First, the development of regional structure is unbalanced. The imbalance of regional structure development is mainly reflected in the lower overall planning level of the maternity insurance system, and there are problems of inconsistent standards in local policies, and the phenomenon of "fragmentation" is more serious. There are great differences in security treatment among regions, and the polarization is serious. The places with high subsidies can reach 220000 yuan of maternity allowance every year, ten times higher than the national average, while the lowest areas are less than 10000 yuan. The low level of financing, the rapid growth of medical and health expenses caused by the improvement of medical service levels, and most of the funds are occupied by maternity allowance leading to the inability of some regions to improve the treatment of maternity insurance. Although maternity insurance has been incorporated into medical insurance, these problems have not been substantially solved.

Secondly, the development of group structure is unbalanced. By the end of 2019, only 213 million people in China had participated in maternity insurance, which is still far from the total employed population of 776 million. In the whole year, only about 6.8 million people enjoyed maternity medical treatment, and about 420 people enjoyed maternity allowance, which was far lower than the actual number of women giving birth. Some women, such as housewives, are still excluded from the system. They cannot pay maternity insurance by themselves, or enjoy maternity allowance and

benefits brought by national policies.

Thirdly, the development of gender structure is unbalanced. Although China's maternity insurance system protects women's legitimate rights and interests to a great extent, it ignores the relevant rights and interests that men should obtain when performing their obligations to a certain extent. Moreover, excessive emphasis on women's rights and interests will be counterproductive and will have a potential negative impact on the stability of family structure and social structure, which restricts the development ability of the family to a certain extent. At present, the phenomenon of discrimination against women's employment in the labor market is widespread. Because maternity insurance needs to be paid by enterprises, the labor cost of women is significantly higher than that of men. To pursue greater interests, enterprises are more willing to choose to hire men, which deepens the inequality of employment to a certain extent and is not conducive to safeguarding women's rights and interests.

3.3.2 Inadequate development of maternity insurance system

First, the scope of benefits is insufficient. The problem of the insufficient scope of benefits has existed since 1950. Female groups with different identities bear the same reproductive responsibility and corresponding reproductive risks. However, the state has not given equal treatment to all women in terms of maternity security. China's maternity insurance system has become the patent of urban workers, which means that a large part of women's risks caused by reproductive behavior cannot be resolved and guaranteed. This situation cannot play a substantive role in the smooth implementation and implementation of maternity policy. It is a defect in the design of the maternity

insurance system and ignores the rights and interests of some women.

Secondly, the treatment payment is insufficient. In terms of the content of maternity insurance, including maternity leave, maternity allowance, and related medical services, these pay more attention to the protection of women at the stage of childbirth. From the perspective of the payment method, a one-time fixed payment is often used to pay maternity medical expenses. However, due to the continuous improvement of medical service levels, medical expenses are also increasing, and the amount of quota subsidy is limited, resulting in some early related testing costs that can only be borne by individuals. In terms of the current group of women of childbearing age, there are increasingly elderly pregnant women, and the reproductive risk is relatively greater. They tend to choose to increase the number of tests during pregnancy to reduce the risk, so the medical cost increases, but the maternity allowance and medical cost do not increase. With the current national implementation of the "three child policy", the birth and maintenance of the third child will increase family expenditure, and it is more difficult to educate children than childbirth. Maternity insurance only covers part of the cost of childbirth and does not consider a series of practical problems after the birth of the child.

Chapter 4 Methodology

4.1 Data and methods

This method first uses the results of the seventh population census to predict the recent fertility level and change trend. The census data not only obtained the fertility rate in 2020 but also obtained the total population and birth rate from 2011 to 2019 through the adjustment of the results. Therefore, the fertility rate between these years can be estimated. We will use methods in several different ways to predict fertility. The first is to estimate the total fertility rate by using the functional relationship between the birth rate and the total fertility rate. CBR represents the birth rate, TFR represents the total fertility rate, AX represents the proportion of fertility rate of different ages in the total fertility rate, BX represents the proportion of women of childbearing age in the total population, then $TFR = CBR / \sum AX \cdot BX$. It is known that the National Bureau of Statistics has released the adjusted birth rate (CBR) in recent 10 years, while ax and BX can be calculated from the sampling survey data of population changes over the years (both are proportions). The second method is based on the conventional total fertility calculation method. This method can obtain the age-specific fertility rate and TFR by calculating the number of births and age-specific females. The calculation method of the number of female births by age can be obtained by dividing the number of births adjusted by the National Bureau of statistics by different ages of women of childbearing age. Assuming that the age-specific birth patterns in the census and population sample survey data are accurate, these age patterns can be used to decompose the number of

births. We made two estimates when calculating the number of women by age. The first is to obtain the population by age and sex according to the population sampling survey and use the sampling ratio of each year's sampling survey to directly calculate the female population by age; The other is to calculate the number of women of childbearing age in each year forward and backward from the female population of 2010 census. The life table required for the calculation is generated from the average life expectancy published by the National Bureau of statistics through Blas Rodger conversion.

Next, we analyze the demographic factors of fertility changes in China (Zha, 1991). The change in total fertility rate is caused by the change in age-specific married proportion and age-specific married fertility rate. This hypothesis presupposes that reproductive behavior occurs within marriage and is established in East Asian countries such as China, Japan, and South Korea. This can also explain why the delay of women's marriage in East Asia will directly reduce the fertility rate. The data required for decomposition include age-specific fertility rate, age-specific married proportion, and age-specific married fertility rate. Age-specific fertility rates use the results obtained from the above fertility estimates. The proportion of married people by age is directly obtained from the census and population sample survey data. The age-specific married fertility rate can be obtained by calculating the age-specific fertility rate and the age-specific married proportion. The decomposition of the change in total fertility rate uses the prediction method of age-specific fertility rate year by year under different combinations of several factors. If TFR is used to represent the total fertility rate, A_x^m

is the age-specific married fertility rate of women of childbearing age, and B_x^m is the age-specific married proportion of women of childbearing age, $TFR = \sum A_x^m \cdot B_x^m$. Then the total fertility rate in the first year can be expressed as $TFR1 = \sum A_x^m 1 \cdot B_x^m 1$, and the total fertility rate in the second year can be expressed as $TFR2 = \sum A_x^m 2 \cdot B_x^m 2$. The difference in total fertility rate in the past two years can be decomposed by the difference in total fertility rate prediction under different combinations. For example, the difference between $\sum A_x^m 2 \cdot B_x^m 2$ and $\sum A_x^m 2 \cdot B_x^m 1$, and the difference between $\sum A_x^m 1 \cdot B_x^m 2$ and $\sum A_x^m 1 \cdot B_x^m 1$ represent the change in the total fertility rate caused by the age-specific married proportion of women of childbearing age. The average of these two values can be used as an estimate of the contribution of changes in the size of women of childbearing age. Similarly, the same method is used to estimate the contribution of married fertility factors of women of childbearing age.

Finally, we will discuss the population forecast of the “three child policy”³. The base year population data of the population forecast is from the 2017 national registered residence statistics by age population data of the Ministry of public security. We first calculate 2020 to make it the same as the total population at the time of the seventh census and then predict the future. We assume that under different fertility levels, we can predict the future population development trend. At the same time, according to the current situation, we will also simulate the population development trend under the condition of a low fertility rate. Therefore, we assume that the fertility rate of the total population is 1.0, 1.3, 1.6, 2.1, and 2.25. In addition, according to the medium and high

³ Department of Population and Employment Statistics, National Bureau of Statistics. Statistical Analysis Technology of Population and Employment [M]. Beijing: China Statistics Press, 2012: 82-104

growth rate scheme provided by the United Nations, we have obtained the prediction of average life expectancy. In 2100, the average life expectancy of Chinese men was 83.5%. At the age of 75, the average life expectancy of women is 89.5% 08 years old. The sex ratio at birth will gradually decline from 111.3 in 2020 to the normal level in 2030 (107). To prevent the results from being affected by too many factors, our population prediction model does not consider international migration.

4.2 Recent fertility trends in China

Since the National Bureau of statistics adjusted the total population and birth rate from 2011 to 2019 according to the data (see columns 2 and 3 of Table 1), we can calculate the adjusted birth number from 2011 to 2019 (see column 4 of Table 1). The adjusted number of births in 2011-2019 increased by 10.03 million compared with the originally announced number of births, of which 8.65 million increased from 2011 to 2014, 1.39 million increased from 2016 to 2017, and decreased by 10000 in 2015. In other words, the number of births in the early stage has increased sharply in the past 10 years, but there has been little change in the later stage. This adjustment has brought three unexpected consequences: first, the fertility rate in 2011-2014 is much higher than previous estimates, which is in great contrast to the extremely low fertility rate obtained by the 2010 census. Secondly, if the number of births in 2010 is not adjusted, the number of births in 2010-2011 will rise by leaps and bounds. There was also a jump in the number of births from 2011 to 2012, but this can be explained because of the preference of the zodiac because 2012 is the year of the dragon; However, it is difficult

to find a reasonable explanation for the jump rise from 2010 to 2011. Third, the number of births in 2014 exceeded that in 2016, indicating that the policy of "single two children" (parents can have a second child only if they are the only children in the family) seems to be better than the policy of "comprehensive two children" (all couples can have a second child), but there is no exact explanation.

Table 1. Total population, birth rate, number of births, and total fertility rate from 2011 to 2020

| year | Total population (10000) | Birth rate (%) | The number of births | Total fertility rate (a) | Total fertility rate (b) | Total fertility rate (c) | Total fertility rate (d) |
|------|--------------------------|----------------|----------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 2011 | 134916 | 13.27 | 1785 | 1.632 | 1.636 | 1.637 | 1.613 |
| 2012 | 135922 | 14.57 | 1973 | 1.810 | 1.826 | 1.815 | 1.781 |
| 2013 | 136726 | 13.03 | 1776 | 1.637 | 1.655 | 1.640 | 1.554 |
| 2014 | 137646 | 13.83 | 1897 | 1.750 | 1.772 | 1.765 | 1.670 |
| 2015 | 138326 | 11.99 | 1654 | 1.531 | 1.561 | 1.550 | 1.410 |
| 2016 | 139232 | 13.57 | 1883 | 1.760 | 1.774 | 1.775 | 1.770 |
| 2017 | 140011 | 12.64 | 1765 | 1.685 | 1.696 | 1.699 | 1.719 |
| 2018 | 140541 | 10.86 | 1523 | 1.506 | 1.515 | 1.501 | - |
| 2019 | 141008 | 10.41 | 1465 | 1.505 | 1.498 | 1.501 | - |
| 2020 | 141178 | 8.52 | 1200 | - | - | - | - |

Source: the data of total population in column 2 and birth rate in column 3 are from the National Bureau of statistics, and columns 4-8 are calculated by the paper.

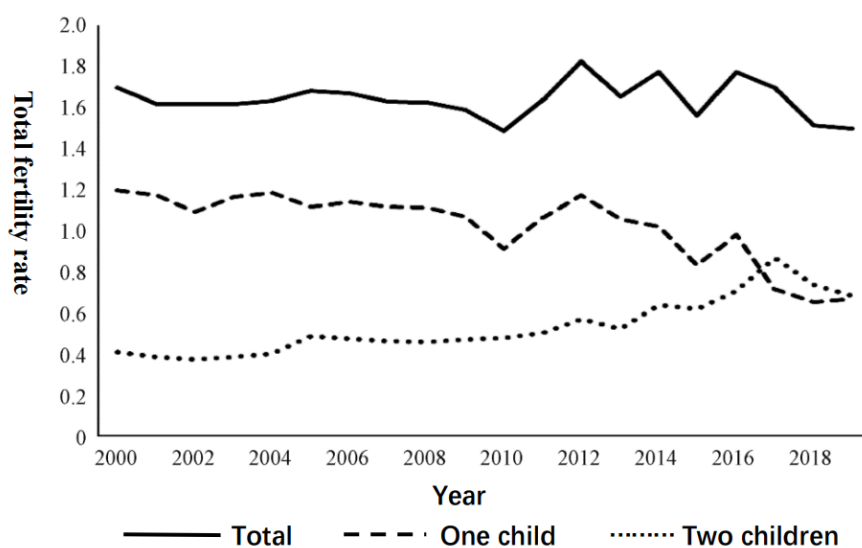
Columns 5-7 of Table 1 show the total fertility rate derived from the adjusted number of births. The total fertility rate in column 5 is estimated from the functional relationship between the birth rate and the total fertility rate. B and C in columns 6 and 7 are estimated according to the conventional calculation method of total fertility. The former's female population of childbearing age uses the sampling survey data of annual population change, while the latter's female population of childbearing age is calculated from the total female population in the 2010 census. The total fertility rate D in column 8 is obtained from the 2017 national fertility sampling survey. These data are highly consistent, while the data of the 2017 fertility sample survey is slightly lower. Overall,

from 2011 to 2020, the total fertility rate was between 1.5-1.8. The fertility rate has declined rapidly since 2017. From 1950 to 1970, the fertility rate declined overall. Until 1990, this figure continued to decline. At first, with the implementation of the “two-child policy”, the fertility rate slowly picked up, but it fell again after some time. The results of the seventh census show that the total fertility rate in 2020 is 1.5%³. Achieve a very low fertility level.

4.3 Demographic breakdown of China's fertility decline

Next, we demographically decompose the changes in China's fertility rate in the past 20 years. As mentioned earlier, this data is not obtained by using the results of the census and population sampling survey, but an estimate based on the number of births over the years published by the official bureau of statistics. Figure 1 shows that the total fertility rate in the past 20 years is between 1.6-1.8 except for individual years. We can see that the officially announced fertility rate is higher than that obtained in the survey.

Figure 1. The changing trend of the total fertility rate



Source: According to the number of births since 2000 published by the National Bureau of Statistics and the distribution of the number of births by age and child times obtained from the census and population sampling survey.

When the overall fertility trend is stable and fluctuates slightly, the fertility rates of "one-child" and "two-child" show opposite trend changes (see Figure 1). The "one-child" fertility rate gradually decreased, but the "two-child" fertility rate increased significantly in the early stage of the implementation of the policy, and the fertility rate in the later stage of the policy exceeded the "one-child" fertility rate. The change in the fertility rate of different children reflects the influence of different factors. The delay in the age of first marriage is the main factor in the decline of the birth rate of the first child, and the adjustment of fertility policy is the driving factor in the rise of the birth rate of the second child. However, it should also be noted that the influence of policy factors has gradually decreased in recent years. The decomposition results of the change in total fertility rate further illustrate the direction and magnitude of the influence of different factors (see Table 2).

Table 2. Breakdown of changes in total fertility rate

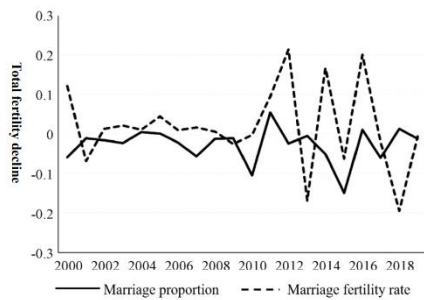
| year | Marriage proportion | Marriage fertility rate | Total |
|------|---------------------|-------------------------|---------|
| 2012 | -0.0239 | 0.2142 | 0.1903 |
| 2013 | -0.0044 | -0.1673 | -0.1717 |
| 2014 | -0.0501 | 0.1676 | 0.1175 |
| 2015 | -0.1490 | -0.0624 | -0.2114 |
| 2016 | 0.0118 | 0.2014 | 0.2132 |
| 2017 | -0.0595 | -0.0184 | -0.0780 |
| 2018 | 0.0134 | -0.1942 | -0.1808 |
| 2019 | -0.0114 | -0.0056 | -0.0170 |

Source: calculated according to the results in Figure 1 and the age-specific marital status data obtained from the census and population sampling survey.

The change in fertility rate can be divided into two factors: married proportion and married fertility rate. Table 2 shows the different influence processes of these two factors since 2012. Except for a few years, the role of the married ratio has been reducing the fertility rate; The effect of married fertility is also lowering fertility in most years. Figure 2 shows the decomposition results of fertility changes in the past 20 years. In fact, over the past 20 years, the role of the married proportion has been negated in most years, while the role of the married fertility rate has significantly increased the fertility rate in 2012, 2014, and 2016. However, the effect of married ratio and married fertility rate on fertility rate is different for different children. Figure 3 shows that the married proportion affects the "one-child" fertility rate, and the delay in the marriage of young women leads to the decline of the "one-child" fertility rate, while the married fertility rate does not show a consistent impact. On the contrary, figure 4 shows that the married proportion has little impact on the "two-child" fertility rate, while the married

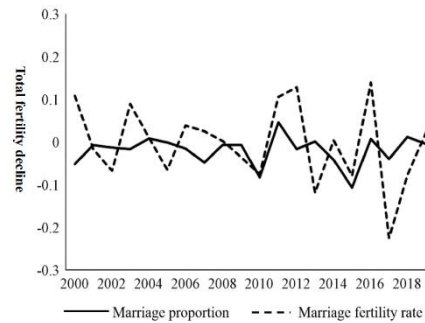
fertility rate has an obvious effect of increasing the "two-child" fertility rate.

Figure 2. Decomposition of changes in total fertility rate



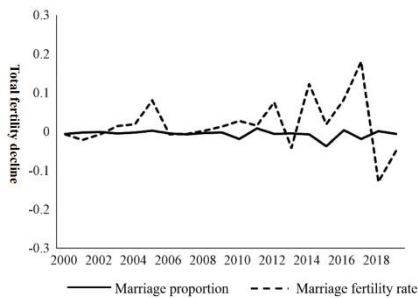
Source: calculated according to the results in Figure 1 and the age-specific marital status data obtained from the census and population sampling survey.

Figure 3. Breakdown of changes in the total fertility rate of one child



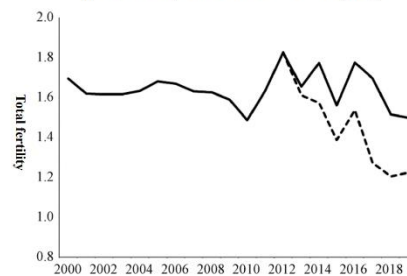
Source: calculated according to the results in Figure 1 and the age-specific marital status data obtained from the census and population sampling survey.

Figure 4. Decomposition of changes in the total fertility rate of two children



Source: calculated according to the results in Figure 1 and the age-specific marital status data obtained from the census and population sampling survey.

Figure 5. Fertility trend without "two-child policy"



Source: calculated according to the results in Figure 1.

How would China's fertility rate change if such policies were not implemented? From the existing survey data, the "two-child policy" and "three-child policy" have brought a significant increase in the birth population. Compared with before and after 2013, the upward trend is obvious. The fertility rate of "two children" from 2016 to 2018 increased from 0.5 to 0.8, with an increase of more than 60%. The multi-childbirth rate increased more than doubled, from 0.07 to 0.15 in 2019. Assuming that the "two-child policy" is not implemented, the fertility rate will remain unchanged at the average level from 2005 to 2012. With the decline of the number of "one-child" births, the overall number is bound to decline. Figure 5 also shows that if the "two-child policy" is not

implemented, the fertility rate in 2014-2016 will be 0.2 lower than the actual level; 0.4 lower by 2017, and 0.3 lower by 2018-2019. This further illustrates the significant effect of the "two-child policy".

Some studies have shown that China's extremely low fertility level in 2020 has been affected by COVID-19 to some extent. However, the larger factor is still the delay of young women's marriage. In the past 10 years, Chinese women's marriage delay has accelerated, rising from 24 in 2010 to 26.8 in 2020. In some provinces and cities, the age of marriage for women is even more than 33 years old. However, the average marriage age of Chinese women is still low internationally (see Table 3). Therefore, the first marriage age of Chinese women still has climbing space and it will continue to reduce the fertility rate in the next 10-20 years. Finally, as shown in the above fertility decomposition results, another reason for low fertility is the married fertility rate. Due to the low willingness of Chinese women to have children, even under the implementation of the "three-child policy", the increase in the number of births is not obvious.

Table 3 International comparison of average age at first marriage of Chinese women

| Year | China | Japan | South Korea | Germany | Spain | France | Sweden |
|------|-------|-------|-------------|---------|-------|--------|--------|
| 2010 | 24.0 | 28.8 | 28.9 | 30.0 | 30.9 | 30.7 | 32.7 |
| 2011 | 24.2 | 29.0 | 29.1 | 30.2 | 31.3 | 30.8 | 33.0 |
| 2012 | 24.8 | 29.2 | 29.4 | - | 31.6 | 31.3 | 33.3 |
| 2013 | 25.1 | 29.3 | 29.6 | 30.5 | 32.2 | 31.7 | 33.0 |
| 2014 | 25.6 | 29.4 | 29.8 | 30.7 | 32.3 | 32.1 | 33.3 |
| 2015 | 25.9 | 29.4 | 30.0 | 30.9 | 32.7 | 32.2 | 33.6 |
| 2016 | 26.3 | 29.4 | 30.1 | 31.1 | 33.0 | - | 33.6 |
| 2017 | 26.5 | 29.4 | 30.2 | 31.7 | 33.2 | 32.5 | 33.9 |
| 2018 | 26.7 | 29.4 | 30.4 | 32.1 | 33.4 | 33.6 | 33.9 |
| 2019 | 26.8 | 29.6 | 30.6 | 32.2 | 33.5 | 34.0 | 34.7 |
| 2020 | 26.8 | 29.6 | 30.8 | 32.3 | 33.8 | 34.8 | 34.7 |

Source: China data from 2020 National Fertility Status Survey; Japan, South Korea, Germany, Spain, etc. data from <https://www.statista.com>.

4.4 The "Three-Child Policy" and the Prospect of Low Birth Rates

We can see from the data that China's fertility rate has dropped to 1.3, which is an extremely low level. This represents an acceleration in the aging of society, yet the birth population has not grown. Therefore, China has implemented a new round of fertility policy, namely the "three-child policy. At the same time, the government has also proposed a series of related supporting policies and measures. No matter what kind of policy it is, it is based on different periods. The policy response to the domestic population shrinking to stability, and then to grow. This is also a policy shift towards achieving a dynamic balance between population size and structure as China's population situation continues to change.

As the effect of the "two-child policy" gradually stabilized, China's birth population dropped significantly. The impact of any fertility rate below replacement level is negative, leading to a sharp decline in population size and severe demographic imbalance in the long run (see Figures 6 to 8). If China maintains a total fertility rate of 1.3 in the 21st century, the population will shrink by more than 700 million in the next 60 years, of which the elderly population accounts for 50% of the total population. Even if the fertility rate rises to the replacement level within 5 years and remains unchanged, there will still be 45 years of low-speed negative population growth. By the end of the 21st century, the total population will drop to 1.32 billion, with 30% of the population aged 60 and above. Assuming that in extreme cases, the fertility rate continues to drop to 1.0, then by the end of the 21st century, China's total population will be less than 500 million, of which the elderly population will account for nearly 60% of the total

population.

Considering both quantitative pressures and structural challenges requires the pursuit of moderately low fertility levels. According to the experience of developed countries, low fertility rates tend to fluctuate. The changes in China's low fertility rate in the past 20 years also show that the cyclical characteristics of population reproduction and changes in marriage and childbearing behaviors have led to the fluctuating evolution of China's low fertility rate. A long-term low fertility rate will accumulate strong inertia of negative population growth. Even if the fertility rate rises to the replacement level, negative population growth cannot be avoided in the short term. Therefore, a moderately low fertility level can be defined as a fertility level in which the total fertility fluctuates around the replacement level and is slightly above the replacement level in the long run. If the fertility rate fluctuates within this range, even if there will be a negative population growth for some time, it will fluctuate around zero growth, and the population will grow at a low rate in the long run (see Figure 6). For example, if the total fertility rate is predicted to be 2.25 (see Figures 7 and 8), China's population will be 1.495 billion by the end of the 21st century, and the proportion of the population aged 60 and above will not exceed 30%. In the next 80 years, the proportion of the elderly population will be between 20% and 30%, the proportion of the young population will be between 16% and 19%, and the proportion of the working-age population will be between 55% and 60%.

Figure 6. Natural population growth rate under different fertility levels

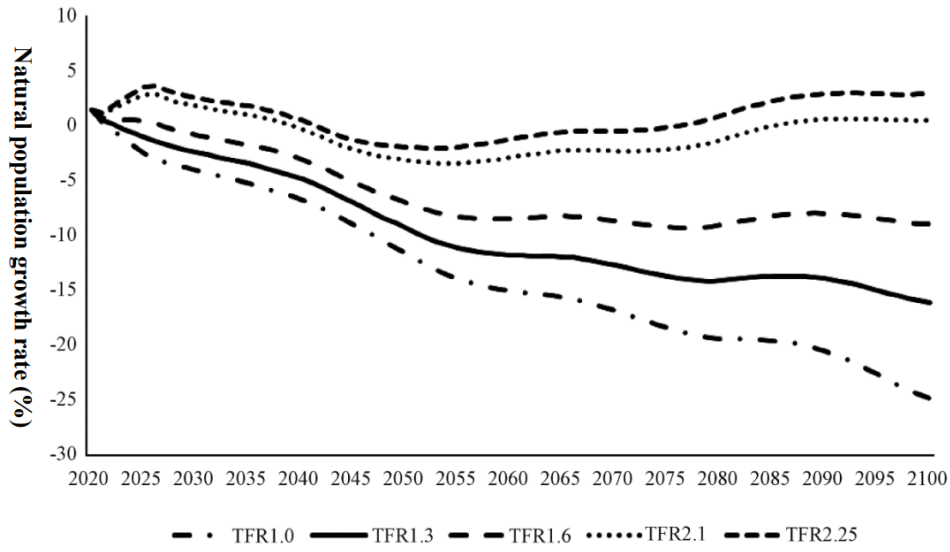


Figure 7 Population size at different fertility levels

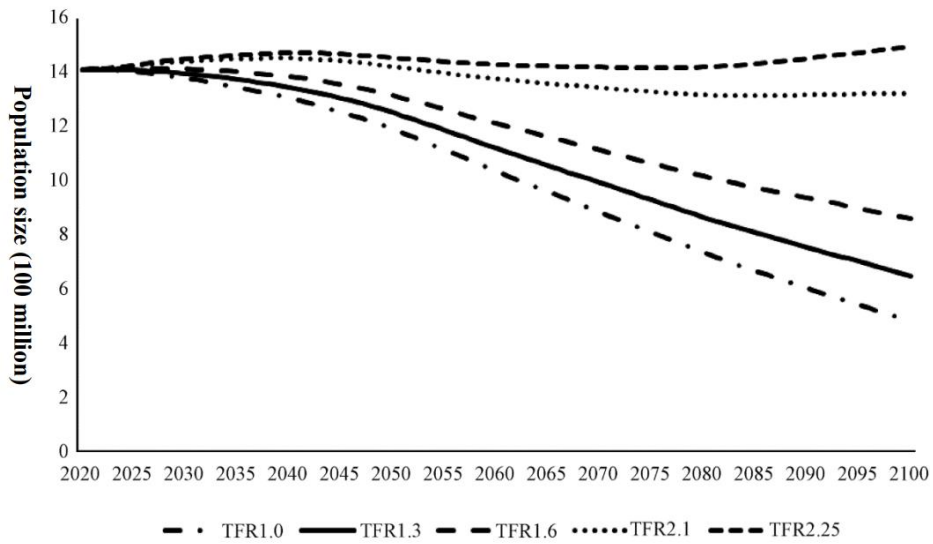
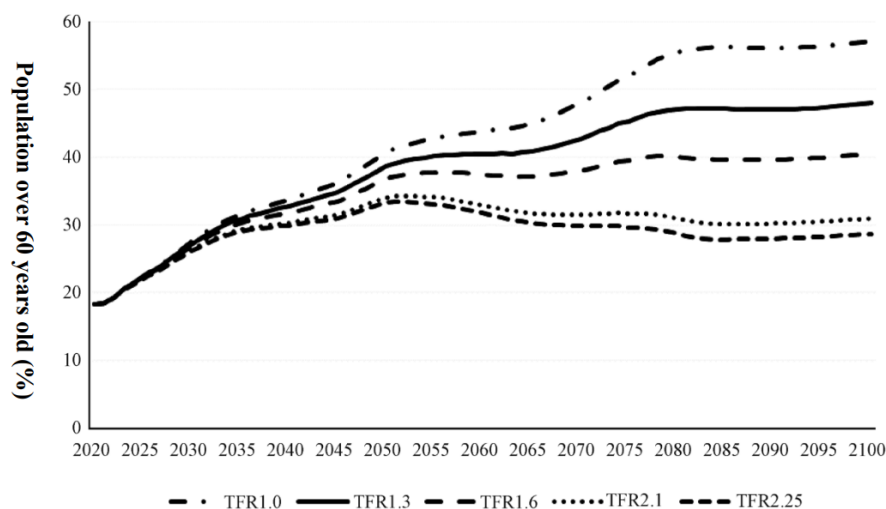


Figure 8 Aging trends under different fertility levels



The implementation of the "three-child policy" provides enough room for maneuver to pursue and realize this moderately low fertility rate. The implementation of the "Three-Child Policy" also provides enough room for adjustment for China's balanced regional population development. Although the overall fertility rate in China is already at a very low level, there are still large regional differences. On the one hand, this is caused by the unbalanced economic and social development in different regions and the differences in previous birth policies. The "Three-Child Policy" has improved the low fertility rate in some areas, while also constraining areas with higher fertility rates.

In addition, the "three-child policy" also provides more space for meeting individualized and diversified reproductive needs. With the rapid advancement of urbanization and the substantial improvement of education levels, the heterogeneity of different regions and different groups will continue to increase, and the differences in the pursuit of fertility goals will also increase. The "Three-Child Policy" provides the possibility for families who are willing and able to have one more child, and also provides more and more complete reproductive and educational facilities.

Although the "three-child policy" is still a restrictive birth policy, the degree of restriction is already weak. The "three-child policy" has been able to satisfy the wishes of most couples to have children. From the census and fertility sampling survey data, the number of births of the third child accounted for 5%-8% of the total number of births, and the fourth child and above accounted for only 1%-2%. It can be seen that the effect of the birth policy restricts the higher the number of births is smaller.

China's low fertility rate has persisted for 30 years. In the past 30 years, it has changed from "exogenous" low fertility to "endogenous" low fertility. In 1990, after the intensified implementation of the fertility policy, China's fertility rate quickly fell below the replacement level, entering an "exogenous" low fertility rate. With the rapid economic and social development, in the process of the continuous decline of China's fertility rate, the role of the fertility policy has been decreasing, while the role of social and economic development has continued to increase. In the low fertility trend since 2000, social and economic development has played a decisive role, and China has entered an "endogenous" low fertility rate. The impact of the birth policy is becoming less and less. However, regional disparities in China remain large. Economic conditions, social development, and traditional culture all affect fertility rates in different regions. Although the willingness to have children has generally been low, population heterogeneity has increased. Whether and to what extent the three-child policy can increase the national fertility rate is worth looking forward to and faces great challenges.

Chapter 5 Fertility Policies and supporting measures in developed countries

5.1 East Asia

Japan and South Korea are geographically close to China and share the same cultural and social structure in East Asia. Both countries have achieved rapid economic development and social transformation quickly and are also facing the problems of low

birth rates and aging at different stages. As Japan rapidly entered the stage of modernization, its fertility rate reached below the "replacement level" in the mid-1970s, while South Korea also entered a low level in the 1980s (Miao,2019). The sustained ultra-low fertility level has brought great hidden dangers to Japan and South Korea. The social security system, the sharp increase of individual family risks and national financial risks, and the lack of young population reserves have also led to the decline of social innovation ability and economic vitality. Therefore, since 1990, the population policies of Japan and South Korea have changed from birth control to birth promotion. Their fertility policies reflect the following two characteristics.

5.1.1 Pay attention to the sustainability of fertility promotion policies and establish corresponding management systems.

From 1994 to 2018, Japan issued more than 30 national policies to deal with the problem of fewer children and aging. In 2003, the Japanese government clarified the important value, the basic concept, and the promotion plan of improving the birth rate for the first time from the legal level. In 2005, Japan ushered in a new low in birth population and birth rate since 1899. In response to this situation, the Japanese government introduced a new round of policies in 2006. The policy focuses on supporting all childcare families, covering all stages of childcare support from pregnancy, and birth to university, and helping families, especially women, balance work and life. Since 2009, the Japanese government has formulated more intensive policies through Parliament and cabinet meetings (Quan, 2020).

Similarly, to cope with the increasingly serious low birth rate, South Korea officially

shifted the focus of population policy from population quantity control to quality and welfare at the cabinet meeting in 1996. In the 21st century, South Korea's birth rate has fallen below 1.3. Since 2006, South Korea has successively released three basic plans, reflecting the development trend of three stages. First, focus on building a childcare responsibility system shared by the state, society, and families; Second, pursue a good social environment and ensure the balance between work and family; Third, expand social investment in the next generation and create a safe growth environment for children and adolescents.

5.1.2 Provide financial assistance to families and continue to increase financial support.

Japan has implemented the child allowance system since 1972, giving a monthly allowance of 4000-6000 yen to children aged 3-6 in low-income families. In 2012, the child allowance system relaxed the age limit of children and increased the amount of allowance. The policy gives differential subsidies of 10000 to 150000 yen per month to children and adolescents under the age of 3 and 3 ~ 15 years old respectively, and a parental subsidy of 300000 yen to pregnant women. South Korea realizes separate expenditure from the national budget. In 2010, the South Korean cabinet meeting adopted the second five-year plan, which spent most of the budget on low fertility. The funding standard of children's allowance in South Korea is generally higher than that in Japan. All 0-5-year-old infants can enjoy 200000 won per month of kindergarten care fee or family rearing allowance. The allowance also includes care allowance for low-income families and intergenerational family allowance.

5.2 Nordic welfare state

Public policy in Nordic countries is the birthplace of family policy. As early as 1924, Sweden promulgated the child welfare act, and then other Nordic countries also promulgated relevant policies to protect families and children. Even during the economic crisis in Europe in the 1930s, the Nordic countries were trying to improve the status of children and families. After the end of World War II, these countries successively formulated maternity leave, maternity allowance, legal enrollment opportunities, and high-quality childcare institutions. These family policies have played an incentive role in childbirth to a certain extent. Due to many Nordic countries and large differences in social and historical backgrounds, we mainly choose the family policies of Norway, Denmark, Finland, Sweden, and other countries with wide coverage and high welfare study. The family policies of these countries to encourage childbirth are mainly reflected in the following aspects.

5.2.1 Fertility incentive policy with multiple social functions.

The family policy of Nordic countries mainly consists of four aspects, including cash subsidies for childcare: Health services, and social welfare for women and children (Wu, 2016). These policies are aimed at promoting the compatible characteristics of female employment and increasing fertility. Even if the purpose of the formulation does not directly point to fertility, it has the role of fertility incentive in terms of content.

5.2.2 Parental leave.

The parental leave system is one of the important policy tools to support family fertility and parenting. The length of parental leave varies from country to country, but it has

two common characteristics. First, parents need to share the responsibility of childbirth and upbringing. In Finland, for example, fathers have been paid paternity and parental leave for up to nine weeks; Sweden has stipulated that fathers enjoy a minimum of 90 days of parental leave since 1974. These parental leave policies have become important measures to encourage men to assume family responsibilities and promote gender equality and family harmony. Secondly, parents also enjoy other benefits of childcare. Norway's parental allowance can be up to six times the basic amount of national insurance; In Finland, if both parents have no income, they will receive a minimum allowance of € 2900 per day.

5.2.3 Full range of childcare services.

The Nordic countries use public revenue for care services for preschool children. This policy can reduce women's time and energy in caring for children and promote women's better return to society and work. Other countries have established statutory compulsory education for children under the age of 6, which can relate to the public education system throughout the process. This can not only reduce the cost of raising children, but also alleviate the negative impact of childbirth on a career. To sum up, these welfare policies have prevented the continuous decline of fertility to a certain extent and realized the functions of promoting women's employment and social equality. The family support policies of Nordic countries have been constantly adjusted and improved in decades of development, gradually adapted to their social and cultural background, and played a positive role in stabilizing the fertility rate.

5.3 The United States

Since the 1960s, the TFR of the United States has gradually declined and stabilized. From 1960 to 1965, the United States experienced a "baby boom" characterized by high fertility and a high baby birth rate. However, affected by the economic crisis, oil shortage and other factors, the unemployment rate in the United States has increased significantly since the 1970s, and TFR has been declining. In 1990, the United States experienced a rare period of sustained economic prosperity in history (Zhang, 2002). During this period, the female employment rate is also rising. However, due to the lack of legal forms and childcare facilities, the fertility rate decreased slightly. With the outbreak of the global financial crisis in 2008, only 1637 children could be born per 1000 women. This also means that the United States has entered an era of low population growth (He, 2021). Unlike other developed countries, the US government has no official population policy. In terms of encouraging fertility, the United States aims to indirectly encourage family fertility through other welfare measures. To improve the fertility rate, the current policies adopted by the United States are reflected in the following aspects.

5.3.1 Advocating reproductive freedom and allowing immigrants.

Over the past few years, an important reason for the sustained growth of the U.S. population is the advocacy of reproductive freedom and its inclusion in the protection of privacy (Yu, 2016). Another reason is that the United States has many immigrants, among which Black women have played a key role in population growth (Matthews T J, 2016). However, due to the increasingly fierce social contradictions in recent years,

some researchers predict that the United States may enter an aging society with stagnant population growth in 2050.

5.3.2 Family income allowances.

To ensure the basic living needs of low-income families and achieve economic self-sufficiency, the United States has provided supplementary nutrition assistance programs for low-income families. This enables them to buy healthy food, and the amount of subsidy is based on family size and family net monthly income. In addition, the U.S. Department of health and human services has implemented the "temporary assistance to poor families" program to provide flexible operation programs for States and regions.

5.3.3 Relax the enrollment standards for children from low-income families

The United States has taken two measures to ensure that more children from poor families go to school smoothly. First, the government helps children from poor families obtain high-quality preschool education (Liu, 2007). In addition, relevant departments also provide additional care services for infants and pregnant women. Secondly, the policy helps families in need to pay for health care and education. The early childhood development office has also set up a preschool education development grant "from birth to 5 years old", which has solved the financial difficulties for many poor families⁴. At the same time, to provide a full range of services to families in need, the childcare office has also implemented a family visit program. Understand the needs of pregnant women,

⁴ OFFICE OF EARLY CHILDHOOD DEVELOPMENT. Preschool development grant birth-a synthesis of Funded applications [EB/OL]. (2020-11-03) [2021-08-06]. <https://www.acf.hhs.gov/eecd/early-learning/preschool-development-grant>

prospective caregivers, and their families through regular visits, and provide more targeted support to their parents and caregivers under the age of 5. Although the "nonintervention" measure taken by the United States is not directly linked to encouraging fertility, it not only meets the basic living needs of low-income families but also supports the child-rearing of these families and indirectly stimulates population growth.

Chapter 6 Policy enlightenment, reflection, and new perspective

6.1 Enlightenment from the construction of the "three-child" policy

The development process and effect of fertility policy in East Asian cultural countries, Nordic welfare countries, and the United States show that the unity and coordination of various policy tools can stimulate fertility. For example, the Nordic countries have

developed fathers' leave after parental leave to support common responsibilities and gender equality in child-rearing. To some extent, this has prevented the continuous decline of fertility. Although Japan and South Korea provide childcare services, the expenditure on family welfare is too low to make up for the cost of parenting, so their TFR is still not high. The United States provides subsidies, childcare opportunities, and maternal and child health services for low-income families. Although this has improved the birth rate to a certain extent, the effect of fertility incentives for ordinary working women is not good. Therefore, to ensure that the fertility policy and supporting measures can effectively curb the decline of TFR and improve women's fertility willingness, we must first analyze the basic relationships involved in the impact of fertility policy.

6.1.1 Relationship between fertility policy and social culture

By combing the Fertility Policies of some countries under the three social and cultural systems, we find that there are social and cultural differences between the positioning of family fertility policy and the concept of child-rearing. In countries under the cultural background of East Asia, fertility policy is an integral part of population policy and plays a role in adjusting population size and improving population quality. In the Nordic Welfare States, the family is regarded as an area of social investment. Family policy is adopted to regulate family fertility, child-rearing, gender equality, economic income, etc. These measures support women's employment to a certain extent and stimulate or inhibit fertility at the same time. In the United States, where capitalism is developed, it advocates reproductive freedom and the protection of the family's private sphere. The

adjustment of the population is to provide subsidies for vulnerable groups or reduce parenting costs. Even in the same region, different countries also have different social and cultural traditions and family concepts. Gauthier distinguishes four types of family policies from the perspective of the relationship between the state and the family, namely, the equalitarian family policy in Denmark, the pro-family policy in France, the traditionalist family policy in Germany, and the family policy with limited support based on income survey in the UK (Gauthier, 1996). The fertility policy should have social and cultural adaptability. China has always attached importance to family construction, emphasizing that "family is the first classroom in life". Therefore, the purpose of China's fertility policy is to reduce the birth rate on the one hand. On the other hand, we need to support and guide family parenting to improve population quality, promote people's all-round development and give full play to the social function of the family.

6.1.2 Relationship between fertility policy and female employment and gender equality

Under three different social and cultural systems, the Nordic family policy balances the relationship between women's employment and family and solves the problem of gender inequality in child-rearing and employment. International consensus has been reached on the relationship between fertility policy and women's employment. That is, childbirth has a significant negative impact on the working time investment and labor income level of employed women, especially for highly educated women and urban women (Zhang, 2020). Research shows that women's weekly childcare time increases by one hour, and their current income and average income decreased by 0.4%. This

influence will gradually subside when women begin to return to the work field (Jiang, 2020). In addition, women's temporary withdrawal from the labor market during maternity and maternity leave has greatly reduced their labor participation rate. Even in today's era of advocating gender equality, childbirth has a significant negative impact on the labor participation rate of women, especially those aged 30-39.

6.1.3 Relationship between fertility policy and family child-rearing

East Asian countries, northern Europe, and the United States all emphasize the need to increase educational opportunities for children, especially children from low-income families. The Nordic countries also emphasized the affordability of early care services. This is because childcare services have an important positive impact on women's labor market participation and contribute to the healthy development of children (Corona M, 2017). Since the beginning of the industrial revolution, preschool education has played a role in liberating women and expanding the scale of the labor market. In the early days of the founding of China, "unit nursery" effectively solved the problem of women's family care and work conflict, making Chinese women maintain a high labor participation rate. However, with the development of the market economy, children's access to kindergartens decreases. Childcare responsibilities have led women to reduce working hours and even withdraw from the labor market. At the same time, with families paying more attention to the quality of childcare and the improvement of women's education level, more and more families choose to have fewer children and invest more in children's education. At present, China's policy of supporting families and the service foundation of childcare is still very weak. In a highly competitive society,

various policies and employment environments are not conducive to young people's consideration of career and family, so their willingness to give birth is restrained (Hu, 2012).

6.2 New perspective on understanding fertility support policies

Since the introduction of family policy in the late 19th century, most high-income countries have implemented generous and gender-neutral fertility-promoting family policies to achieve multiple goals such as gender equality, fertility improvement, and child development. Although there have been different opinions on the birth policy itself, the supporters are still the mainstream. The policy circle generally believes that the fertility-promoting family policy breaks the gender role in the traditional family model and allows women to consider family and career. This not only increases the labor participation rate of women and is conducive to economic growth, but also encourages family members to share the responsibility of raising children, which is conducive to promoting children's development and increasing the fertility rate (Hwang J et al., 2018). However, from the perspective of the uneven effect of policy implementation, this belief seems too optimistic, which also leads to more and more reflection on the current policy.

6.2.1 Limitations of traditional cognition

Firstly, the traditional view takes the family as the basic decision-making unit and holds that the husband and wife are a whole when making fertility decisions. This is in line with the traditional male-dominated family model but ignores the impact of the

bargaining power structure within the family on the fertility rate. Based on the above cognitive limitations, the traditional understanding of the mechanism of fertility promotion policy is easy to be simplified. Its basic logic is that the improvement of women's education in the family will increase the opportunity cost of choosing childbirth and housework. This has led to the reduction of women's and their families' fertility desire, and the overall fertility rate of society has also decreased. This logic only sees the opportunity cost effect affecting fertility and ignores the bargaining power effect affecting fertility. The reason is that it treats both sides of the family as the same decision-making subject. Considering the improvement of women's education and market income, their bargaining power in family decision-making has also improved. The impact of this phenomenon on fertility depends on the net effect after the comparison of the opportunity cost effect and bargaining power effect (Lyigun M et al., 2007). The direction of women's bargaining power on fertility is also affected by their preference for children. When a woman has greater bargaining power, the stronger her preference for children is, the more likely it is to have a positive effect on the increase of fertility. On the contrary, the weaker her preference for children, the more likely it is to hurt the increase of fertility. This means that once women's bargaining power is considered, women's opinions in modern families become more and more important. Therefore, fertility promotion policies should integrate more female perspectives. Secondly, the traditional view treats children only as private products, ignoring the positive externality and influence of reproductive behavior. The neoclassical fertility decision-making model has strong explanatory power for the decline of the fertility rate,

but the model only treats children as private products, which is not comprehensive. A more thorough view is that children are a kind of public goods, and fertility is the ultimate public goods problem (Folbre N, 1994; Anomaly J, 2014). As the main provider of public products, women bear the main responsibility to produce children or social products. This responsibility is determined by the natural physiological attributes of women. However, under the traditional family division mode, women often bear the main responsibility of raising children, which is imposed by social and cultural traditions and family structure. Women's labor of caring for the family is not paid, and they pay physical and spiritual costs for childbirth, which is not recognized in traditional culture (Zhu, 2013). In other words, the society and the family get benefits from women's childbirth, but they do not think that the producers of public goods (children) need to be "compensated". This is unfair. When women's choice of fertility is more important in our society, it can have a great impact on our family's fertility decision-making.

Third, the traditional view does not consider the cultural concept and other non-economic factors, which is an important reason why the fertility support policy is difficult to achieve the expected effect. "Procreation" is women's natural gender endowment, but in history, this endowment has not won them market power and bargaining power in the family division of labor. On the contrary, this has become women's "resource curse" and hindered women's pursuit of success and self-realization. Only in the last half-century, women have gained the right of gender equity. Since the 1970s, women's education level and competitiveness in the job market in developed

countries have increased rapidly. Nowadays, unmarried, and childless young women are as competitive as young men in education and employment or even surpass the latter. This gives women higher bargaining power in the family. They can control their marriage and childbirth choices. If her environment makes her feel gender injustice, her preference for children and willingness to bear will be hit, so she will respond to reproductive behavior (Lyigun M et al., 2007). This is obvious in places with strong traditional family culture. Therefore, it is easy to understand that the same fertility promotion policy has very different effects in different cultural environments. For example, countries such as Italy and Spain put more emphasis on men's work and women's home-based models. In these countries with strong family cultures, modern women feel stronger gender inequality. They often express their strong reactions by not getting married, not having children, or having fewer children. According to the study, 40% of women choose to have one less child, which can reduce the average fertility rate from 1.7 to 1.3 (McDonald, 2013).

6.2.2 “Workism” squeezes fertility willingness

Nordic countries are the first countries in the world to advocate gender equality, and they are also exemplary countries in coordinating work and family relations. However, why has the fertility rate in these countries also decreased frequently in the past decade? In addition to being affected by the economic crisis, the explanation of "workism" deserves special attention (Comolli CL et al., 2021). "Workism" means that modern people choose not to have children, not out of the calculation of economic interests, but suppressed by the desire for important work. Due to the pursuit of career success, job

competition is becoming increasingly fierce, and the job is more unstable. Neither husband nor wife regards running a family as the main pursuit of life. This "workism" has hurt fertility. In a survey of American women, it was found that there was still a significant correlation between "workism" and reproductive outcomes (DeRose L et al., 2021). The study also questions mainstream policy efforts to promote equal family responsibility. If a society is deeply influenced by the culture of "workism", even if full gender equality is achieved in the private sector, it is unlikely to lead to significant rebound infertility.

6.2.3 Low fertility in East Asian Society

The above views urge people to re-examine the changing trend of fertility in East Asian society. Taking Singapore as an example, its fertility support measures are known as the most complete in Asian countries and regions, but the fertility rate has continued to decline (Jones W et al., 2015). Japan implemented a comprehensive maternity incentive after 2000. Japan's childcare services and maternity leave benefits alone have reached the level of countries with high birth rates such as Sweden and France, but Japan's fertility rate has hardly improved (Schoppa L J., 2020). South Korea launched the "men do more housework" campaign, which did not seem to play a practical role (DeRose L et al., 2021). The popular corporate overtime culture in Japan and South Korea and the traditional family culture in which women undertake housework leads to the fact that women who choose market employment still play a major role in taking care of the housework. This "workism" culture makes women bear the dual pressure of work and family. Singapore has the same problem. In the mainstream culture that does not

recognize illegitimate children, late marriage and nonmarriage are important reasons for the decline of fertility. In addition, because the whole society attaches great importance to academic and professional achievements, despite the universally recognized success in human capital, it comes at the expense of the national will and ability to establish a family. In such a society, even if there is a perfect policy to encourage fertility, it is very difficult to achieve the policy objectives. Research shows that in some countries (such as Nordic countries, the United States, and France) with the highest development level (measured by the "human development index") after the human development index exceeds the level of 0.85 ~ 0.9, the fertility rate can return to 1.8 ~ 2.0 (Myrskylä M et al., 2009). The above East Asian countries belong to developed economies. However, due to the low level of gender equality and the adverse impact of "workism", although their human development index exceeds 0.85 ~ 0.9, there is no reversal of fertility.

Chapter 7 Conclusions and policy suggestions

7.1 Conclusion

China's fertility rate has experienced a rapid and sustained decline since the 1970s. Since 2000, although the postponement of women's marriage has played a role in reducing the fertility rate, the fertility rate in China has fluctuated upward because the

birth population entered the marriage and childbearing age in the 1980s and the implementation of the "two-child policy". However, as more young people enter the age of marriage and childbirth, not only the number of them has decreased significantly, but also the delay of marriage is more obvious. This also led to a sharp decline in fertility after the policy effect subsided. In just four years, the total fertility rate fell from 1.8 to 1.3. China has entered a period of extremely low fertility. This means that population aging will accelerate growth, and there is likely to be zero growth in the birth population in the future. Most of the previous Chinese population forecasts estimated that China's negative population growth would come in 2030. But on current trends, this is likely to happen in the next year or two. This paper analyzes the huge problems existing in China's population and fertility rate based on the data of the seventh census. The data have shown that this is the first time in Chinese history that the number of the elderly population exceeds that of children. In the future, aging will be promoted at a faster speed. China is likely to experience the fastest aging process in the world. At the same time, once China's population growth turns, it will enter an irreversible long-term and rapid negative growth stage.

7.2 Policy recommendations

The adjustment of fertility policy is an important measure to actively respond to population aging and promote balanced population development. However, for some families with fertility intention, this not only means an increase in economic pressure and parenting responsibility but also has a significant impact on women's labor supply.

Therefore, policies need to focus on supporting policy arrangements for women's families, the labor market, and social welfare. In addition, low fertility is also an inevitable phenomenon in the process of social and economic development in various countries. Since 1990, the number of births in China has decreased, and the TFR is lower than the internationally recognized fertility trap value. The implementation effect of fertility policy is different in different countries under different social and cultural systems. TFR has rebounded in some countries, while it has continued to decline in some countries. The results of this study have multiple policy implications, not only considering the balanced relationship between society and family but also providing reference and Enlightenment for China to improve the effectiveness of fertility policy and its supporting measures.

7.2.1 Improve the labor market structure

An important reason why women withdraw from the labor market due to childbirth is the lack of work and family coordination mechanisms. Therefore, the government needs to expand and improve public policies on work and family and coordinate the balance between them. In addition, policies need to address the structural problems of the labor market and ensure equal employment for young women. If the employment problem is not solved, in the long run, it will not only be conducive to narrowing the gender equality gap between men and women, but also affect the quality of labor supply and stable economic development of the whole society. In addition, improving women's education and paying attention to the obstacles women face in the workplace will help offset the negative impact of childbirth on women's labor supply.

7.2.2 We will strengthen family subsidies and improve social security

A low labor participation rate hurts women's family economic dependence and economic productivity. At the same time, a low fertility rate will also threaten the future population structure. The policy should implement childcare subsidies for low-income families to reduce the negative impact of fertility policy adjustment on the labor supply of low-income women. This can be achieved by reforming the national tax credit system, increasing job incentives for low-income families, and creating a more conducive employment environment. At present, among the female groups with low education and low family income in China, women of childbearing age are the most in need of protection. Therefore, the policy needs to further improve the social security system of this group to ensure that they have a good pension and medical security. This is of great significance to improve the quality of childbirth and childcare for low-income families, improve the level and quality of women's labor input, and improve their economic and social status.

7.2.3 Improve childcare policies

Improving the childcare policy is an important measure to ensure the adjustment and implementation of fertility policy and the effective supply of the female labor force. Specific policies include: first, making childcare services public and increasing public investment in childcare services. Policies need to give full play to and integrate various social resources and forces, expand the coverage of childcare supply, and create as many degrees as possible for young children. The second is to improve the accessibility of childcare, and the location and time of care facilities can facilitate the needs of

trusteeship. The policy recommends setting up childcare facilities in the nearest community and encouraging the opening of one-stop childcare centers. This helps to balance parental time arrangements and reduce women's work-family conflict. Third, improve the quality of childcare in the market. The market share of private childcare resources in China is close to 2 / 3, but the quality is uneven. The policy needs to strengthen the professional skills training of private childcare providers and do a good job in supervision and management to ensure the quality of childcare.

7.2.4 Fertility policy should consider the national orientation and local flexibility

The birth policy is constantly adjusted and improved by the state based on analyzing the trend of population development and change. It plays a regulatory role in population size, female employment, and family welfare. For example, in the United States, because each state decides its own local fertility welfare policy, there are differences in fertility rates. When implementing the "three child policy", China should put forward appropriate Fertility Policies Based on the population composition, social security, and economic development level of different regions. The study found that there are inverse proportional differences between the level of urbanization and women's education level and fertility rate. The higher the level of urbanization and education, the lower the fertility rate (Chen, 2020). The "three child policy" and its supporting measures should pay attention to the adaptability and effectiveness of local fertility policies. Make flexible adjustments based on following national policies to give full play to the effect of promoting fertility

7.2.5 Building a group of compatible fertility incentive policies

In combining the supporting Fertility Policies of countries under different social and cultural backgrounds, we found that the policy tools mainly include supply type (maternity leave / parental leave/family subsidy), demand type (providing free and quality guaranteed childcare services), and environment type (enterprise work style reform and flexible working time system). However, the effect of policy tools is not singular, there are substitution effects and regional differences. So, the Three child policy "The implementation of the policy should design various measures to promote fertility and consider the interaction between the measures, to build a compatible fertility incentive policy group. The policy effect evaluation of some countries also shows different results. As for cash subsidies, in France, cash subsidies have a positive effect on the birth of a third child. However, some studies have pointed out that cash subsidies have no significant effect on the birth of the third child but only have a positive effect on the birth of the first child. (Evans J M, 2002) In Australia, the policy has played a positive but limited role in promoting the rise of fertility. At the same time, it also brings some social problems: some young people will have children to obtain subsidies, and the high number of subsidies also puts great pressure on the local government. In addition, while family welfare policies such as maternity leave have a positive effect on the fertility rate, they may also cause inequality in women's employment. The family welfare policy has various effects on the fertility rate. Due to different social concepts, policies will have different effects on different countries and systems. Therefore, policymakers should constantly improve the policy system based on fully evaluating and grasping the effect of the policy, so that all policies complement

each other and jointly play a positive role in promoting fertility.

7.2.6 Strengthen the protection of women's employment equity and anti-discrimination

Childbirth is an important choice in women's life and career development. It is influenced by many factors, such as social culture, traditional ideas, economic income, and so on. The Nordic welfare state's family policy of encouraging childbirth attaches importance to women's efforts in child-rearing and family life and ensures a good family environment and equal employment through a variety of measures. To a certain extent, this has achieved the purpose of encouraging fertility. An important reason for the low fertility rate in Japan is that Japanese women have long been in the social role of full-time housewives under the influence of traditional ideas. Even though women have had more choices and decisions in recent years, the contents of fair employment for women and anti-gender discrimination in the existing policies still need to be improved. Some women regard childbirth as an obstacle to employment and self-realization, which has raised the average childbearing age in Japan.

At present, although China's labor law stipulates special labor protection measures for women, women will still be dismissed due to pregnancy and lower wages in the labor market. To some extent, this has affected fertility willingness and fertility rate. Therefore, the policy of encouraging family fertility must learn from the Nordic Welfare States. For example, connect it with the female employment policy, to reduce the opportunity cost that woman and their families must pay due to childbirth (Kan, 2018). In addition, the provision of paternity and parental leave to fathers helps to promote gender equality between men and women in the family and the job market. Although

some regions in China have stipulated paternity leave for fathers in local laws and regulations, the provisions on paternity leave and paternity leave for fathers still lack a national legislative guarantee. Therefore, it is necessary to explicitly grant fathers the right to parental leave in the form of national legislation and encourage fathers to take a vacation.

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