

Analysis of the reasons for the low fertility rate in China since 2020

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Abstract. The weakening phenomenon of fertility behavior in China at the current stage has become a serious problem. This article starts from discussing driving factors that inhibit fertility intentions, and provides a detailed analysis of fertility policies, parenting costs, educational devaluation, the expansion of the LGBTQ+community, women's independence, and specific situations of infertility. It aims to help the country formulate relevant policies to address this issue, while also encouraging more people to pay attention to it, improve fertility rates, and achieve sustainable population development.

Keywords: low fertility rate, reasons, China.

1. Introduction

In terms of population, China holds a dominant position in Asia, but negative population growth has persisted for many years. The total fertility rate (TFR) is a value that summarizes all age groups of women in a specific year. Global scholars generally consider that the total fertility rate (TFR) is a low fertility level when it's less than 2.1. If the number is less than 1.5, it is considered a extremely low fertility rate. The lowest low fertility rate is explained as the value not reaches the threshold of 1.3 [1]. The summary of the seventh national census in 2020 shows that China's total fertility rate is only 1.3, which is in a relatively low stage of fertility [2]. Based on the population data released by the National Bureau of Statistics in 2024, China's population in 2024 was 140,828 million, which was 1.39 million fewer than population data as of December 31st last year and net difference rate between birth and death was -0.99%. The normal population replacement requires a level of 2.1, but China's total fertility rate has been consistently lower than and does not meet this level. This not only leads to population aging, but also in the future, low fertility rates will inhibit the vitality of population structure and a shrinking population size, which will lead to serious adverse consequences for enhancing comprehensive national strength [3].

The decrease in fertility rate has led to the aging population phenomenon becoming a serious problem. The core factor is the phenomenon of a decay in the labor force and a weight increase of elderly population is considered an economic problem that is difficult to solve due to low fertility rates and societal challenges [4]. The profound impact of maintaining a population reproduction fails to meet sustainable standards on the socio-economic transformation of developing countries deserves special attention, especially in the Chinese context [5]. Especially since entering the 21st century, the fertility rate continues to decline, the shortage of new labor force population, the population aging early and high sex ratio at birth, the pressure of intergenerational support is excessive, and the risk of life one-child family life is highlighted, this variable is a key shaping force in China's modernization process. Although the academic community generally agrees that China's fertility rate has dropped to a historical low of nearly 20-25 years, there are still significant differences in the explanation of its causes [6]. There is significant disagreement among scholars, especially the dynamic game relationship between family planning and variables such as economic reform and social transformation. Birth control measures influence the fertility rate level. However, some other effects such as the economic development, the policies that support childbirth and child-rearing, and infertility also have chances to influence the fertility rate level [7]. However, there are still some factors that have not been fully considered by scholars, such as the expansion of the LGBTQ+community and the increasing proportion of couples experiencing infertility problems.

To address this thorny social issue, the 'fertility hesitation' of this generation deserves in-depth interpretation. Therefore, this article focuses on examining the multidimensional factors that lead to weakened reproductive behavior, such as the family economy, the interactive relationship between employment and family, the popularity of higher education and social media, delayed marriage, Infertility, and homosexuality. Understand how these reasons contribute to decline in fertility behavior and how much fertility desire is affected by them. This can assist relevant personnel in better policy planning and developing relevant solutions. Promote population growth, improve China's fertility rate, resolve the series of problems caused by the low fertility rate such as population aging, achieve sustainable population development, and promote social and economic development.

2. Literature review

2.1. The trends of global low fertility rate since the late 20th

The transmission path of declining fertility rates is spreading from high-income countries to the developing world, breaking the traditional boundaries of population transition theory [8]. When the replacement level of total fertility is below 2.1, under the condition that the fertility level cannot achieve internal population balance, population reproduction will be unable to maintain its current scale, marking a fundamental shift in the global population paradigm from suppressing high fertility rates to addressing the birth deficit [9]. Nearly half of individuals in human society are experiencing a population environment where fertility rates have dropped below the level of generational replacement [8]. Since the early 1990s, many countries' total fertility rate has fallen to unprecedented levels.

South Korea shows characteristics of a compressed population transition from 1960 to 2001, with the total fertility rate plummeting from 6.0 to 1.3 and maintaining a consistently low fertility rate thereafter [10]. Data shows that Japan's fertility rate has remained slightly less than the replacement level of 2.1 since the late 1950s, but has shown a long-term downward trend since 2.14 in 1973, dropping to 1.26 by 2005 [11]. By 2001, 1.3 threshold countries facing the risk of population collapse covered over half of the population in Europe [12]. Since 2010, Italy's fertility rate shows a decreasing trend, and its total fertility rate of 1.29 in 2019 has put it back on the list of countries with the highest risk of sustainable population development [13], indicating that fertility has become a global issue that needs attention.

2.2. Analysis of the impact of the global low fertility rate since the late 20th

What will happen in the future with the current decline in fertility rates? Some experts believe that although the current economic recession may suppress short term fertility rate indicator, our conclusion is that as the temporary impact of delaying childbirth becomes less significant, countries with previously lowest fertility rates will continue to see fertility rates rise [14]. While in the view of other experts. In the case of China, there is still uncertainty about what level of fertility will be stable in the future, and the possibility of a lower than 1.5, in the long run, is not large, while the total fertility rate is more likely to be 1.5-1.8 [15].

People must recognize the problems that population decline has brought to many developed countries. The effects of population decline are already threatening large parts of Europe, as well as Russia and Japan. More countries are expected to experience similar declines in the total fertility rate in the coming years. In the coming years, it is expected that more countries will enter the fifth stage, and the total fertility rate will also experience a similar decline. The problems caused by population decline are far more than just population reduction. As developed countries age, members of the working age group bear a greater burden in supporting the elderly. As the number of people holding positions after retirement decreases, elderly people will be forced to work or seek external economic assistance after the typical retirement age. In addition, as more and more elderly citizens put pressure on these projects, the burden of social welfare will continue to increase. For example, the fees paid by working people are used to pay for the reduction in pensions of retired people. In the end of 2019,

there were 170.3 million people who aged 65, representing 12.57%. Although China is a developing country, its aging level is almost the same as that of developed countries. That is, there is a situation of "getting old before getting rich" [16]. The transformation of China's population age structure will present the "three highs" characteristics: high growth rate of elderly population, high proportion of elderly people living alone, and high pressure on pension security [17].

For one thing, some scholars argue that falling fertility rates will raise material standards of living, due to population decline, most families only need to support one child or even no child, which will reduce people's living pressure and lower living costs [18]. For another thing, some scholars support that the declining fertility rate will cause an age imbalance among the underemployed. First, the proportion of young people, who are the future labor force, has gradually decreased, which has directly triggered a decrease in the main age group of employment and an insufficient supply of labor to participate in economic construction. Second, the ratio of the elderly population is gradually rising, and the physical functions of the elderly workers begin to gradually deteriorate, accompanied by diseases, etc. Objective conditions do not allow excessive labor output, and some of them also begin to retire with the increase in age, which ultimately reduces the supply of the human resources. With the shortage of supply of main economic activity population brought by the low fertility rate, enterprises and institutions with labor demand will find it increasingly difficult to recruit workers, and labor costs will become higher and higher. In the labor market, the demand for labor is greater than the supply, and the mismatch between supply and demand is inevitably unfavorable to the long-term stable development of our economy [19]. Therefore, we still need to identify the reasons and take measures to increase fertility rates.

3. Reasons for low fertility rate in China

3.1. The birth policy

The birth policy is enforced by national government agencies and is a national-level regulation of the quantity and quality of children people have. In recent years, in order to control the resource and environmental pressure caused by rapid population growth, China has implemented birth control policies such as "family planning" (1980s), "separate second child" (2013), "comprehensive second child" (2016), and "three-child" policies (2021) [20]. In the early stages of family planning work, some people would rather bear occupational risks than have a second child. After entering the 21st century, China's one-child policy has adapted to the family planning policies experienced from childhood to adulthood, making it difficult to adapt to how to raise two or more children. It will take decades to reverse the one-child policy among the general public [21]. Nowadays, most families with two children subconsciously prefer younger children, causing older children to lack the love of their childhood parents and be even more unwilling to have children.

3.2. The costs of raising children

The increasing cost of raising children (including basic living expenses, education, future work for children, marriage, and childbirth costs) is an economic obstacle to the introduction of the current fertility policy [20]. In China from the 1950s to the 1970s, many families could only meet the most basic survival needs of their children, and the cost of raising children was relatively low. At that time, the demand for education was not particularly urgent, and even some economically disadvantaged families did not send their children to school, mainly due to economic limitations. Today, the economic cost of parenting is astonishing, and people's demand for raising a child is no longer limited to just feeding them. They believe that raising a child is not only responsible for their present but also requires parents to consider their future survival and development issues [22]. Against the backdrop of China's economic development and the continuous improvement of residents' living standards, the price level and childcare costs are rising synchronously. After the birth of the child, the expenses for a nanny, mother and baby supplies, daily necessities, and various art classes and tutoring classes on

weekends are particularly high. When the child grows up, they will get married, buy a house, and have children.

3.3. Depreciation of academic qualifications

After the implementation of the policy of expanding enrollment in universities, the competition in the workplace has become increasingly fierce, and with the rising pressure of survival, it has directly suppressed the demand for marriage, love, and childbirth among the younger generation. The development trajectory of basic education popularization and quality optimization presents different trends, China's current society has fallen into a storm called "rolling". Undergraduate students are no longer rare diplomas from decades ago, but a large number of ordinary laborers. In order to occupy a more advantageous position in job hunting, many young people tend to continue their higher education, including master's degrees and doctoral studies after graduating from undergraduate studies, thus delaying their marriage and love life. In the recruitment inspiration of the company, there will be countless highly educated talents investing in resumes for a position. The employment pressure has already caused young people today to be overwhelmed, and they do not have enough time to think about marriage, love, and having children. Due to the increasing competition pressure for job positions, whether young people's salaries can support them well has become a major challenge, let alone raising a child who requires huge investment in the early stage.

3.4. The increase in homosexuality

The large number of infertile homosexuals is also a reason for the decline in fertility rates. The popularization of education has helped many young people establish new concepts of love. Heterosexuality is no longer the only form of love, and the number of homosexuals is also constantly increasing. In 2019, based on Daxue Consulting, 75 million LGBT people constitute 5% of the total population in China [23]. In China, especially in the southwestern region, due to the culture of yin flourishing and yang declining, the proportion of homosexuals has been continuously expanding over time. In big cities such as Beijing, Shanghai, Shenzhen, and Guangzhou, families from well-off backgrounds choose to send their children abroad for further education. After experiencing the baptism of Western culture abroad, many people also realize their sexual orientation and bring this trend back to China, gradually making the LGBTQ+ community known to the world [24].

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3.5. Financial independence of women

The achievement of economic independence by career women is also a major reason for the low birth rate. They no longer choose to be housewives, but instead choose to strive for their own lives. Children are no longer a necessity in their lives. Taking professional women as an example, they may be required to demonstrate independence and decisiveness in the workplace, while in family life, they are expected to play a gentle, caring, patient, and thoughtful role. This differentiated role expectation poses challenges for them when balancing work and family, and if they cannot adjust and adapt in a timely manner, they may develop inner conflicts. In addition, the proportion of women who are asked about their marriage and childbirth during the job search process is much higher than that of men. Under the three-child policy, maternity leave, which may last up to one and a half years, increases the labor costs for companies. Driven by interests, discrimination against childless women by

companies has become increasingly apparent, and women's job search and promotion are also greatly affected by childbirth [25]. These variables weakening the motivation for female reproductive behavior.

3.6. Infertility

Infertility is considered as one of the factors for the decay in fertility rate. One in every six couples in China is infertile [26]. 25-30 years old is the most suitable age for women to have children. With the progress of society, it is common for women to delay childbirth due to work pressure and other reasons. At the same time, a decrease in physical activity can also affect fertility. When the optimal reproductive age range is exceeded, the probability of conception will significantly decrease, and the risks and hazards of childbirth will also increase [27]. From a male perspective, abnormal semen is the primary cause of male infertility. Semen abnormalities include oligospermia, asthenozoospermia, azoospermia, high deformity rate, and nonliquefaction of semen [28]. Infections of the urinary and reproductive systems are also an important cause of male infertility. Relevant literature reports that the proportion of reproductive tract infections in male infertility patients is 52.91%, and the proportion of secondary infertility is as high as 70.50% [29]. The proportion of infertile individuals has increased, leading to a pressure on sustainable population development and resulting in no newborns being born.

4. Conclusion

The issue of population is crucial for the rise and fall of a country and the well-being of its people [30]. This article analyzes the reasons that have led to the decay in China's fertility rate since 2020, including fertility policies, parenting costs, employment pressure, homosexuality, changes in women's attitudes, and infertility. This article integrates most factors and provides a more detailed analysis of the specific reasons for each factor. Multiple variables based on inhibiting fertility intention, this article did not consider all of them, nor did it analyze the internal connections between each factor, as well as which factors have a greater impact over time. Future research can fully consider the impact of pet raising, virtual electronic games, and contraceptive measures, and conduct an in-depth exploration of the internal dynamic relationships and proportions of each factor.

Reference

- [1] C. Chen, X. Xiong, and G. Tang, "A decomposition study on the factors influencing China's total fertility rate changes between 1990 and 2020," *Scientific Reports*, vol. 14, no. 1, Nov. 2024, doi: <https://doi.org/10.1038/s41598-024-79999-4>
- [2] Y. Li and X. Zhang, "The Influence of Marriage Delay and Birth within Marriage on Fertility Level in China: Based on Decomposition Model of Total Fertility Rate," vol. 43, no. 4, pp. 1–11, Jul. 2021.
- [3] D. Geng, "China's fertility rate will face downward pressure in the future," *Development Research*, no. 11, pp. 50–53, 2017.
- [4] J. Liu, C. Xing, and Q. Zhang, "House price, fertility rates and reproductive intentions," *China Economic Review*, vol. 62, Art. no. 101496, 2020.
- [5] Y. Zhang and F. W. Goza, "Who will care for the elderly in China?: A review of the problems caused by China's one-child policy and their potential solutions," *Journal of Aging Studies*, vol. 20, no. 2, pp. 151–164, 2006.
- [6] Z. Guo, S. Gietel-Basten, and B. Gu, "The lowest fertility rates in the world? Evidence from the 2015 Chinese 1% sample census," *China Population and Development Studies*, vol. 2, no. 3, pp. 245–258, 2019, doi: 10.1007/s42379-018-0012-1.
- [7] D. He, X. Zhang, Y. E. Zhuang, Z. Wang, and Y. Jiang, "China fertility report, 2006–2016: An analysis based on China fertility survey 2017," *China Population and Development Studies*, vol. 2, pp. 430–439, 2019.
- [8] S. P. Morgan and M. G. Taylor, "Low fertility at the turn of the twenty-first century," *Annual Review of Sociology*, vol. 32, no. 1, pp. 375–399, 2006.

- [9] S. P. Morgan, "Below-replacement fertility," *Emerging Trends in the Social and Behavioral Sciences*, pp. 1–17, 2015.
- [10] S. Lee and H. Choi, "Lowest-low fertility and policy responses in South Korea," in *Low and Lower Fertility: Variations Across Developed Countries*, pp. 107–123, 2015.
- [11] M. Atoh, "Family Changes in the Context of Lowest-Low Fertility: The Case of Japan," *International Journal of Japanese Sociology*, vol. 17, no. 1, pp. 14–29, Nov. 2008, doi: <https://doi.org/10.1111/j.1475-6781.2008.00109.x>
- [12] T. Sobotka, "Is lowest-low fertility in Europe explained by the postponement of childbearing?," *Population and Development Review*, vol. 30, no. 2, pp. 195–220, 2004.
- [13] D. Vignoli, A. Minello, G. Bazzani, C. Matera, and C. Rapallini, "Narratives of the future affect fertility: Evidence from a laboratory experiment," *European Journal of Population*, vol. 38, no. 1, pp. 93–124, 2022.
- [14] J. R. Goldstein, T. Sobotka, and A. Jasilioniene, "The end of 'lowest-low' fertility?," *Population and Development Review*, vol. 35, no. 4, pp. 663–699, 2009.
- [15] C. Huang, Judgment and Trend Prediction of China's "Low Fertility Trap" under the New Population Policy, Master's thesis, Shandong Normal University, 2017.
- [16] Q. Nie, Research on the impact of population aging on human capital, Master's thesis, Capital Univ. of Economics and Business, Beijing, China, 2021. [Online]. Available: <https://doi.org/10.27338/d.cnki.gsjmu.2021.000257>
- [17] C. Bai and X. Lei, "New trends in population aging and challenges for China's sustainable development," *China Economic Journal*, vol. 13, no. 1, pp. 3–23, 2020.
- [18] R. Lee, A. Mason, NTA Network, E. Amporfu, Q. Zhang, et al., "Is low fertility really a problem? Population aging, dependency, and consumption," *Science*, vol. 346, no. 6206, pp. 229–234, 2014, doi: 10.1126/science.1250542.
- [19] S. Zhao, The Impact of Low Fertility Rate on China's Economic Development and its Response, Master's thesis, Shanghai University of Finance and Economics, 2022.[Online].Available: <https://link.cnki.net/doi/10.27296/d.cnki.gshcu.2022.002036>
- [20] W. Liu, Research on Birth Policy in Contemporary China under the New Development Concept, Master's thesis, Donghua Univ., Shanghai, China, 2023. [Online]. Available: <https://doi.org/10.27012/d.cnki.gdhuu.2023.000370>
- [21] L. Tan, Research on the historical change and improvement of China's family planning policy, Master's thesis, Xiangtan Univ., Xiangtan, China, 2017.
- [22] Z. Wang, Research on the evolution and development of China's family planning policy since the founding of New China, Master's thesis, Jilin Univ., Changchun, China, 2018.
- [23] BBC News, "LGBT China: The plight of sexual minorities in the face of 'force majeure'," Jun. 28, 2023. [Online]. Available: <https://www.bbc.com/zhongwen/simp/chinese-news-66040480>
- [24] W. Song, Analysis of the impact of male homosexual identity on their marital and reproductive status, Master's thesis, Shandong Univ., Jinan, China, 2017.
- [25] H. Zhang, Research on Anti Employment Gender Discrimination under the Background of Increasing Fertility Rate Policy, Master's thesis, Shanghai Maritime University, 2024.
- [26] L. Jiao and L. Liu, "Research progress of traditional Chinese medicine in the treatment of infertility due to ovulation disorder," *The World's Latest Medical Information Digest*, vol. 19, no. 82, pp. 87–88, 2019. doi: 10.19613/j.cnki.1671-3141.2019.82.042
- [27] Y. Zhang, The Relationship Between Personal Modernity and Marital Quality in Infertility Patients, Master's thesis, Zhengzhou University, 2021. [Online]. Available: <https://link.cnki.net/doi/10.27466/d.cnki.gzzdu.2021.004345>
- [28] Y. P. Ge, Analysis of Infertility Cases and Related Factors in a Hospital in Daqing, Master's thesis, Jilin University, 2010.
- [29] G. Q. Xiang, R. A. Chen, Y. K. Zhang, L. Jiang, and L. Y. Xu, "Etiological analysis of 6498 cases of male infertility," *Journal of South China University (Medical Edition)*, no. 2, pp. 211–213, 2005.
- [30] S. M. Zhang, Influencing Factors and Statistical Prediction of Birth Rate, Master's thesis, Nanchang University, 2024.