

## A study on China's education level and average age of first marriage

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### Abstract

*China's fertility problem has attracted more and more attention, especially in the education level and the age of first marriage. Census data show that China's fertility rate from 2000 to 2020 tends to gradually decline, the age of first marriage is gradually postponed under the condition of different levels of education, and the childbearing age is also constantly postponed, in the short 20 years of a sharp decline in fertility, China's fertility policy has also been adjusted. However, at present, the change of the birth policy has only brought a very short-term effect, and the decline in the fertility rate is only a fact that cannot be changed by adjusting the birth policy. Therefore, based on the data of the fifth, sixth and seventh census data, this paper analyzes the change trend of average age of first marriage, the trend of education level and age of first marriage, the change trend of national average childbearing age and the average childbearing age of various regions in China. The study found that the average age of first marriage of the population in China continues to be postponed, the average age of first marriage in urban areas is higher than that in towns and villages, overall, the average age of first marriage of women in 2020 will reach 28.14 years old, and the average age of first marriage of men will reach 29.3 years; by 2020, with the improvement of education level, the age of first marriage of the population with postgraduate degrees will reach 44% at the age of 30 and later; The national average childbearing age increased from 25.91 years in 1990 to 28.91 years in 2022. In the seventh population census, the average childbearing age of each region was higher than that in Beijing, Shanghai, Shandong, Guangdong and Shaanxi, among which the average childbearing age in Beijing reached 31.51 years, Shanghai was 30.08 years, Shandong was 29.76 years, Guangdong was 29.38 years old, and Shaanxi was 29.53 years.*

### Keywords

*average age at first marriage, average age at childbearing, education level.*

### 1. Introduction

According to the data of the seventh national census in 2020, China's national population is

1443497378 people, of which there are 1411778724 in 31 provinces, autonomous regions, municipalities directly under the central government and active military personnel in mainland China, 7,474,200 in the Hong Kong Special Administrative Region, 683218 in the Macao Special Administrative Region and 23561236 in Taiwan. Since the census began in 1953, China's mainland population has shown an upward trend, with 582.6 million in 1953, 694.58 million in 1964, 100818 million in 1982, 113368 million in 1990, 126583 million in 2000, 133972 million in 2010, and 141178 million in 2020. However, the average annual population growth rate in China has been decreasing year by year since the implementation of family planning in 1982, with an average annual population growth rate of 1.61% in 1964, 2.09% in 1982, 1.48% in 1990, 1.07% in 2000, 0.57% in 2010, and 0.53% in 2020. This has to lead to thinking about the age of first marriage and childbearing age. With the advent of the information age and the transformation of traditional thinking, a new generation of young people seem to be "not cold" about marriage and childbirth, Qiu Leiju et al. (2022) found that the group using the Internet was 10.5% lower than that of non-users, and the reduction of fertility intention directly affected the postponement of childbearing age and average first marriage age. Therefore, this paper studies the average age of first marriage, the average age of childbearing and the age of first marriage under different levels of education.

## 2. Literature

At present, there are many studies on the impact of the age of first marriage on fertility problems in China, such as Zhou Xing and Liu Xin (2022) who found that reducing the cost of family childbirth has a certain impact on the age of first marriage and fertility decisions. Chen Wei, Zhang Fengfei (2022) found that the age of first marriage was delayed in all groups from 1990 to 2020. He Hong, Tan Tian (2021) found that the higher the education level in China, the higher the average age of first marriage. Guo Xianchao (2021) found through prediction that China's future marriage squeeze is serious, and men aged 15-49 are significantly more unmarried than women. Liang Tonggui (2020) found that the average age of first marriage of ethnic minority men was basically lower than that of Han men, while the average age of first marriage of ethnic minority men and women showed an upward trend with time. Tan Jingyi, Jiang Quanbao (2020) found that the average age of first marriage of women in China is rising, and the average age of first marriage of women reached 25.6 years old in 2017, and the improvement of education level will delay the time for women to enter marriage. Liang Tonggui (2020) found that cohabitation before marriage has a negative impact on the age of first marriage, and cohabitation before marriage will delay the age of first marriage. However, at present, there are few studies on the change trend of childbearing age based on the difference between the average age of first marriage between cities, towns and villages, so based on the inspiration of the above literature research, this paper uses the data of the fifth, sixth and seventh population census to study the relationship between the average age of first marriage, the average age of childbearing and the education level and the age of first marriage in China, which is conducive to providing suggestions for the groups with higher education level.

### 3. Data sources and research methods

#### 3.1. Data sources

The main data of this paper are from the fifth, sixth and seventh population census of China, and this paper first analyzes the change trend of the average age of first marriage of men and the average age of first marriage of women in cities, towns and villages in China from 1980 to 2020. Secondly, based on the national data on education level and age of first marriage, the marriage rate of different education levels at different ages was analyzed. Further analysis of the change trend of the average childbearing age of women in China from 1990 to 2022.

#### 3.2. Research methods

**Average age at first marriage:** The average age of a person who married for the first time in a given period or the average age at the time of first marriage of a cohort population, which is the weighted average of the age at first marriage weighted by the number of first marriages of each age. The calculation formula is as follows:

$$\bar{M} = \frac{\sum (x + 0.5d) \times E_x}{\sum E_x}$$

$\bar{M}$  is the average age at first marriage,  $x$  represents the lower limit of the age group for first marriage,  $E_x$  represents the number of people married at  $x$  years old, and  $d$  represents the distance between age groups, which can be 1 year old or 5 years old. This article uses the five-year-old age group for calculation.

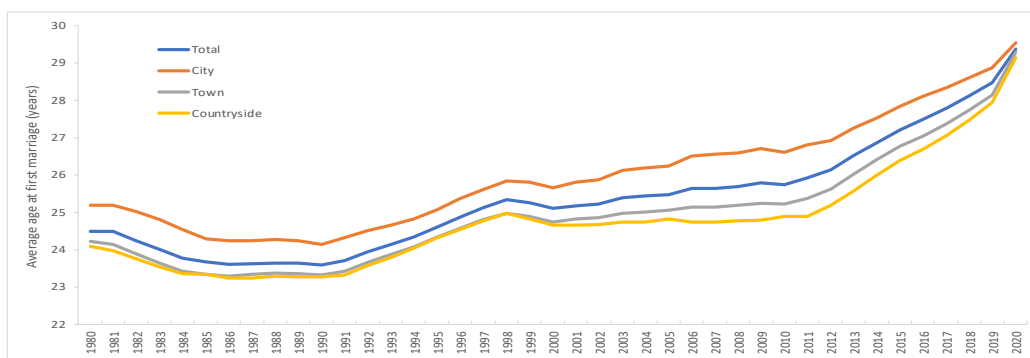
**Average childbearing age:** The average childbearing age of the female's age-specific fertility rate in a given period is the weighted average of the age-specific fertility rate weighted by the age-specific fertility rate. The calculation formula is as follows:

$$\bar{T} = \frac{\sum (i + 0.5t) \times f_i}{\sum f_i}$$

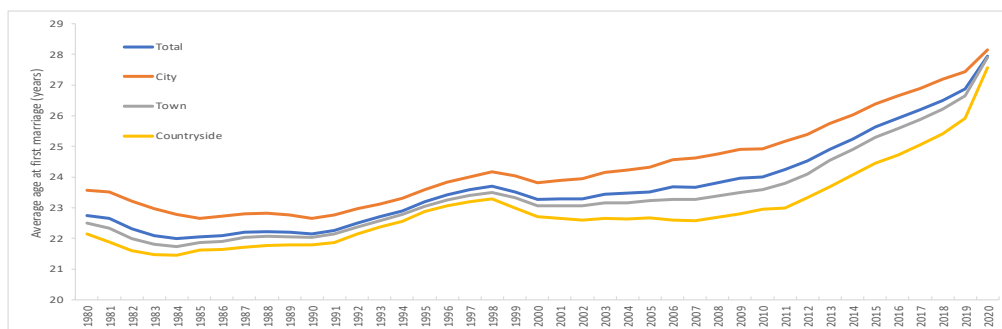
$\bar{T}$  is the average childbearing age,  $i$  represents the lower limit of age in the fertility rate for each age,  $f_i$  represents the fertility rate of the  $i$  age group, and  $t$  represents the age group distance, which can be 1 year old group or 5 year old group. This article uses the five-year-old age group for calculation.

## 4. Study results

**4.1. The average age of first marriage of China's population continues to rise, which is generally reflected in the fact that the average age of first marriage of the population in urban areas is higher than that of towns, and the average age of first marriage of the population in rural areas.**



The change trend of the average age of first marriage of men in China from 1980 to 2020



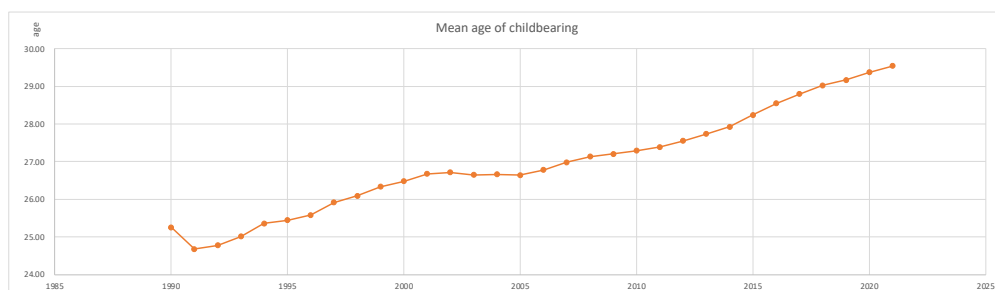
The trend of the average age of first marriage of women in China from 1980 to 2020

According to the data of the seventh national census, the average age of first marriage of male and female population in cities, towns and villages from 1980 to 2020 can be calculated. Overall, it can be seen that from 1980 to 2020, the average age at first marriage of male and female populations in cities, towns, and rural areas has the same change trend, and both show a steady upward trend in the average age at first marriage after 1998. In 1998, the average age of first marriage of urban male population was 25.85 years old, and that of urban female population was 24.17 years old. By 2020, the average age of first marriage of the urban male population will be 29.54 years old, and the average age of first marriage of the urban female population will be 28.14 years old. Compared with the average age of first marriage of male and female population in 1980, the average age of first marriage of urban male population in 2020 was delayed by 4.35 years, the average age of first marriage of urban female population was delayed by 4.57 years, and the average age of first marriage of urban male population was delayed by 5.07 years. The average age of first marriage of the population has been postponed by 5.39 years, the average age of first marriage of rural men has been postponed by 5.05 years, and the average age of first marriage of rural women has been postponed by 5.43 years. Among them, compared with 1980, in 2020, the average age of first marriage of male and female population in towns and villages is higher than the average age of first marriage of

urban male and female population. It is because the town and rural population go out to work, and the age of marriage postponement due to social pressure and influence is higher than that of the urban population. However, from 1980 to 2020, the overall performance is that the average age of first marriage of the urban population is higher than that of the town, and the average age of first marriage of the rural population.

#### 4.2. The trend of changes in the national average childbearing age

Since the implementation of family planning in China, the number of births has been well controlled, until 1998, after the natural growth rate of China's population fell to 10 ‰ for the first time, after 10 years of unoptimistic population births, the Chinese government has adjusted the birth policy in 2013, 2015 and 2020. However, the number of births in recent years is still not optimistic, and whether it is a single second child in 2013, a comprehensive second child in 2015, or a three-child policy in 2021, the implementation of the three-child policy brings little utility. In recent years, the reason for the continuous decline of China's fertility rate is no longer the status quo that can be well changed by closely adjusting the birth policy. Based on the comprehensive influence of social factors, personal factors, cultural concepts, etc., the childbearing age of China's young generation group is generally delayed, through the calculation of the average childbearing age change of China's population from 1990 to 2021 and the visualization image shown in the figure below, it can be seen that the average childbearing age of China's female group in 1990 was 25.25 years old, and the average childbearing age in 2000 was 26.48 years, from the entire image, the average childbearing age from 1990 to 2021 tended to rise as a whole, and the average childbearing age in 2010 was 27.29 years old, and 29.54 years old in 2021.



The change trend of average reproductive age in China from 1990 to 2021

#### 4.3. The average childbearing age of each province and city

Data on the average childbearing age of provinces and cities were obtained from the data of the last three national censuses. In 2000, there was little difference in the average childbearing age among provinces and cities in China, and the areas with a higher average childbearing age were 27.64 years in Shandong, 27.74 years in Guangdong and 29.73 years in Tibet, while the average childbearing age in other areas did not differ much. The data of the three censuses also revealed that the average childbearing age in 2020 was significantly higher than the average childbearing age of the remaining two provinces and cities. Among them, in the seventh population census, the average childbearing age of provinces and cities was higher in Beijing, Shanghai, Shandong, Guangdong and Shaanxi than in other regions, among which the average childbearing age in Beijing reached 31.51 years, Shanghai was 30.08 years, Shandong was 29.76 years, Guangdong was 29.38 years old, and Shaanxi was 29.53 years. Compared with 2010, the average childbearing age in Beijing increased by 1.06 years,

Shanghai by 1.41 years, Shandong by 0.76 years, Guangdong by -0.47 years, and Shaanxi by 0.55 years. As can be seen from the chart, the average age of childbearing in 2010 increased significantly by region compared with 2000.

Table of average childbearing age by province and city, 2000-2020

district	Average age of childbearing in 2000	Average age of childbearing in 2010	Average age of childbearing in 2020
Beijing	27.32	30.45	31.51
Tianjin	26.57	29.79	29.80
Hebei Province	26.51	28.35	28.54
Shanxi Province	25.55	27.86	29.07
Inner Mongolia Autonomous Region	25.18	28.51	29.72
Liaoning Province	25.63	28.33	29.64
Jilin Province	25.35	28.25	29.29
Heilongjiang Province	24.72	28.60	29.31
Shanghai Municipality	25.91	28.67	30.08
Jiangsu Province	24.71	28.04	28.92
Zhejiang Province	26.03	27.91	29.04
Anhui Province	25.34	27.05	28.68
Fujian Province	25.60	28.11	28.97
Jiangxi Province	24.89	28.10	28.51
Shandong Province	27.64	29.00	29.76
Henan Province	26.45	28.89	28.90
Hubei Province	25.15	28.81	29.43
Hunan Province	25.81	29.08	29.14
Guangdong Province	27.74	29.85	29.38

Guangxi Zhuang Autonomous Region	26.54	28.73	29.26
Hainan Province	26.38	28.17	29.06
Chongqing Municipality	24.87	28.07	28.88
Sichuan Province	24.73	28.48	28.58
Guizhou Province	25.66	26.77	28.02
Yunnan Province	25.37	26.35	28.26
Tibet Autonomous Region	29.73	29.37	28.74
Shaanxi Province	25.38	28.98	29.53
Gansu Province	25.40	27.71	28.24
Qinghai Province	25.63	27.87	28.32
Ningxia Hui Autonomous Region	25.08	26.77	28.05
Xinjiang Uygur Autonomous Region	26.25	28.43	28.72

## 5. Conclusions

According to the current development trend, the average age of first marriage in China will be further delayed, and at the same time, with the increase in the number of people receiving higher education, the number of college graduates or above will increase significantly in the future, and the scope of postponement of the age of first marriage will be further expanded. The childbearing age of women will be further delayed due to a combination of factors, and the average childbearing age of women in various provinces and cities will be further delayed. The delay of the average age of first marriage and the average age of childbearing will further aggravate the serious problem of aging in China, and the number of newborns will further decline. Fertility support policies have played a limited role. Due to the current environment, marriage and childbearing issues have become considered by men and women to be the main event. Under the influence of comprehensive factors such as employment pressure, work pressure, housing problems, income problems, childbirth costs, and parenting costs, most young people have a "lying flat" attitude towards marriage and childbirth, so the adjustment of fertility policy plays little role.

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