

# Residents' Wealth Level and Fertility Gender Preference

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## Abstract

**This article uses the 2013 China Household Finance Survey data and probit model to study the impact of residents' wealth on fertility gender preference. Traditional theory starts from the socio-economic functions of different genders, and believes that the income level of residents serves as a social and economic protection barrier and life foundation for residents, replacing the economic functions of gender, thereby weakening the residents' preference for gender selection. But the empirical research in this article shows that the higher the wealth level of residents, the more they prefer to have boys. This may be because, on the one hand, a high level of wealth represents a more sound economic and social insurance situation, which may impact the direct economic utility of the male baby to the parents and thus correct gender preference; but on the other hand, compared to families with lower wealth levels, residents with a higher level of wealth may pay more attention to the continuation of family wealth, thus strengthening the gender preference behavior in reproduction. For wealthy families, the latter has played a relatively obvious role, so it is concluded that the level of wealth is positively correlated with gender preference.**

## Keywords

**Wealth level; Fertility gender preference; Economic function.**

## 1. INTRODUCTION

Maintaining population gender balance is of great significance to the long-term development of society. However, there is a serious imbalance in the sex ratio between men and women in China. According to the sixth national census, the male and female populations in China account for 51.27% and 48.73% respectively, and the sex ratio at birth is 118.06. According to demographers, the normal value of the sex ratio at birth is 103-107, which means that the sex ratio at birth in China is at least 11 percentage points above the normal level. Although the government has been strengthening publicity and education on equality between men and women, the problem of gender imbalance is still particularly significant in some rural areas such as in Guangdong province and northern Anhui. C.Yao, F.Wu and J. Li analyzed the domestic survey data and related literature on the willingness to have children from 2000 to 2010 and found that on the one hand, the difference in the number of children willing to have children between urban and rural residents is gradually shrinking, but on the other hand, the gap of the gender of willingness to have children between urban and rural areas is still obvious [1]. The preference for boys among urban residents has weakened significantly, and some cities even show preference for girls. The preference for boys among rural residents has weakened with the change of the age, but still exists. The excessively high gender ratio has adversely affected the harmony and stability of our society, the improvement of people's quality of life, and the sustainable development of the economy. For example, S.Liu believes that the long-term deviation of the sex ratio at birth will affect women's right to life and survival [2]. W.Chen and

M.Li and others believe that the imbalance of the sex ratio at birth will result in a reduction in the size of the birth population, accelerated population aging, and marriage squeeze [3].

From an operational perspective, there are two direct factors that affect the sex ratio at birth, one is the concept of fertility—sex selection preference, and the other is fertility technology—sex selection technology. The concept of fertility dominates people's choice of fertility technology, so it is the key to implementing gender selection. Specifically, the concept of fertility is subject to macro-level factors such as traditional culture, customs, policies, and the level of social and economic development, as well as micro-level factors in the characteristics of individuals and families. Affected by the traditional Chinese culture of patriarchal patriarchy, boys are considered to have the special family function of "passing on the clan and receiving generations" and the economic insurance functions of "raising children to protect the elderly" and "stabilizing family income". Families give priority to boy baby when making reproductive decisions. The family planning policy implemented in 1980 has squeezed the family's fertility space to a certain extent, and has increased the family's preference for having boys in the early stage [4]. From the perspective of microeconomics, some scholars use the theory of "utility maximization" to explain individual fertility choices. Among them, the most outstanding representative is Perry Gary Becker of the Chicago School. According to this theory, individuals treat children as a special commodity, and after measuring the benefits and costs, choose the number of births that maximizes their own utility. As a supplement to this theory, X.J.Zhu explained the high gender ratio at birth in China by constructing a model of relative utility between men and women, and believed that the relative utility between men and women is the basis for the family's choice of reproductive sex [5].

This article starts from the wealth level of individuals and families, and explores the influence of individual economic factors on the preference of reproductive sex. On the one hand, the level of wealth enters the utility function of individual fertility and has a substitution effect with gender selection; on the other hand, it enters the constraint equation of fertility decision-making, which determines the tightness of constraints faced by individual fertility.

## 2. LITERATURE REVIEW

Regarding the research on the issue of reproductive gender preference, scholars mainly analyze it from the social and individual levels.

Reproductive gender preference is affected by the social environment. Some scholars explain the reasons for gender imbalance from the perspective of socio-economic development. The study by Jiang Dawei, Zhang Xingwu and others found that the economic gap between urban and rural areas is the main reason for the difference in preference for boys between urban and rural families [4]. The per capita income of urban households is high, which belongs to the preference for hedonic birth and weaker sex preference for children. As per capita income of rural families is low, in order to meet the long-term family needs and the real income gap, rural families show a strong preference for boys. S.Z.Gu and L.Chen considered the socio-demographic effect of urbanization, believed that the modernization of the concept of fertility was closely related to urbanization, and regarded urbanization as a "propeller" to downplay male preferences [6].

The impact of relevant domestic policies on reproductive gender selection is mostly focused on the discussion of whether the family planning policy has promoted the gender imbalance of the population in our country. In this regard, there are three different voices in the academic world. The first view is that the family planning policy has led to a high sex ratio of the population. H.Liu, F.N.Zhong J.Zhu and L.Wang investigated the reproductive behavior of micro decision-making subjects under different fertility policies based on micro subjects. Studies have found that the family planning policy will indeed affect reproductive behavior, causing the

problem of a high sex ratio at birth [7]. Similarly, T.M.Yu studied the impact of our country's family planning policy on the sex ratio at birth, and empirical results show that the family planning policy has led to population gender imbalance [8]. The second view is that the family planning policy is not directly related to the gender ratio of the population [6-9]. Some scholars pointed out that because countries and regions that have not implemented family planning policies, such as India, South Korea, and Taiwan, have different levels of high sex ratios at birth, the view that China's family planning policies cause an imbalance in sex ratios at birth is unreasonable. The third view is that strict birth control policies have an inhibitory effect on the increase in the sex ratio at birth. Not only did the childbirth policy not lead to an increase in the sex ratio at birth, but strict control over the births of second and more children can effectively curb the trend of rising sex ratio at birth, because the higher the birth order, the higher the sex ratio at birth [10].

Other scholars believe that if the Chinese people's gender preference is understood only from economic and political factors, then it is impossible to explain why the preference for male babies still exists in economically developed and reproductive countries such as South Korea and Taiwan. Therefore, some scholars try to explain human sexual selection behavior in reproduction from social and cultural factors. W.M.Guo believes that the strong preference for boys in traditional Chinese culture is the root cause of the high sex ratio at birth [11]. Most families' understanding of the gender of their children has always been influenced by traditional cultural customs and values. Some scholars have studied the gender preferences of farmers under different marriage patterns, and the results show that different marriage patterns endow the sexes with different social functions and values, which in turn affects farmers' gender preferences.

From the point of view of the purpose of individual reproductive behavior selection, it is generally considered that it can be summarized as the following six points: Inheritance, End-of-care, Economic Needs, Emotional Sustenance, Obligations and Responsibilities, and Go with the flow. Individual differences in education, economic status, household registration, age, etc. show different preferences for reproductive gender. P.Wang explored the impact of life course and socioeconomic status on fertility on gender preference for reproductive sex. The results of the study show that people in the main reproductive period (25-34 years old) have a stronger desire to have a boy. The improvement of status has changed the concept of fertility and gender to a large extent, that is, with the improvement of education level and position status, the tendency of girls is getting higher and higher [12]. L.Ma, X.M.Fang et al. found that the gender of the only child (first child) can affect the parents' willingness to give birth to the second child, and the only boy has a significant negative impact on the parents' willingness to have a second child, and this impact is more significant for urban residents and fathers [13]. Q.Z.Liao, G.Z.Cao and R.Tao based on the micro data analysis of the migrant population survey in 12 large, medium and small cities in the four major urbanization areas of the country, examined the fertility willingness and gender preference of the migrant population, and the results showed the age, gender and marital status of the migrant population, education level, health status, type of work and type of residence have a significant impact on willingness to bear children [14]. L.X.Mo used the 2002 "Survey of Rural Residents' Fertility Willingness" conducted by the Ministry of Education and Publicity of the National Family Planning Commission and came to the relevant conclusions: older people are more affected by traditional concepts, and their gender preference should be stronger; higher education, the lower the degree of gender preference should be; but from the perspective of the relationship between family annual income and gender preference, the increase of family income will not directly lead to the decline of gender preference [15].

Through literature review, we can see that the academic research on the preference of reproductive sex is not uncommon. There are related theoretical introductions and empirical

studies, whether from the perspective of social, economic, institutional, and cultural aspects, or from the perspective of individual characteristics. However, there are not many studies devoted to exploring the influence of family wealth level on fertility gender preference. Many literatures focus on exploring various factors that affect gender selection, and the research on income level on fertility behavior mostly focuses on the impact on the number of births. For example, based on Becker's child quantity and quality substitution model, X.J.Zhang investigated the reproductive behavior of residents of different income classes, and believed that changes in family income would directly and indirectly change the number of planned and unplanned children in the family. The shadow price of quantity (if the family has superbirth behavior) affects the parents' choice of the number of children [16]. In addition, some articles on family economic level and reproductive gender selection behaviors are not comprehensive enough to analyze the mechanism. They emphasize the unequal economic functions of different genders directly affecting the parents, while ignoring the traditional thought of men's function of family wealth continuation. Therefore, the marginal contribution of this article is to verify its influence on gender preference from the perspective of residents' wealth and further explore the mechanism of occurrence, which is a supplement and enrichment to the existing related literature.

### 3. DATA AND MODEL DESIGNING

#### 3.1. Data and Variables

This article uses the 2013 Chinese Household Financial Survey Database. This database is a nationwide sample survey project carried out by the Chinese Household Finance Survey and Research Center of Southwestern University of Finance and Economics to collect relevant information on the micro-level of household finance.

Selection of dependent variables. This research mainly focuses on the residents' gender orientation in reproduction, so the residents' responses to the question "is it good to have a boy or a girl" are used as the explained variable. Residents choose one of the three options of "good boy", "good girl", and "just as good". Taking into account the preference for boys as the main social problem and phenomenon, in the course of the research, the answers as "just as good" and "girls are good" are regarded as "no fertility gender preference"; the answer is "boys are good" as "has fertility gender preference".

Selection of core explanatory variables. The wealth level of residents includes not only residents' income, financial assets held by them (bank deposits, stocks, bonds, funds, etc.), but also non-financial assets (real estate, land, vehicles, etc.), as well as social pension insurance and social Whether the medical insurance is held or not. Therefore, in the process of regression using the probit method, the wealth level of residents is described from the four dimensions of income, the number of financial assets, non-financial assets, social insurance holdings, and total assets, as the core explanatory variable. Examine the relationship between wealth level and gender preference.

Selection of control variables. With reference to the research methods of Liao Qingzhong, Cao Guangzhong et al. (2012) and Zhang Xinjie (2017), age, gender, household registration type (household), job type, education level, health status, and ethnicity were used as the control variables of this study. Refer to Table 1 for the meaning and symbol abbreviation of each variable.

**Table 1.** Value and definition of variables

Variables	Symbol of variables	Definition of variables
Gender preference	preference	0:No fertility gender preference or boy baby 1:Have fertility gender preference for boy baby
Income	ln_income	Income plus 1 then logarithm
Financial assets	ln_fassets	Financial assets plus 1 and then takes the logarithm
Non-financial assets	ln_nfassets	Non-financial assets plus 1 and then takes the logarithm
Social pension insurance	soc_old	0:Not participating in social pension insurance 1:Participating in social pension insurance
Social medical insurance	soc_health	0:Not participating in social medical insurance 1:Participating in social medical insurance
Total assets	ln_tassets	The sum of financial assets and non-financial assets plus 1 and then takes the logarithm
Education	education	Education years, the larger the value, the higher the education level
Age	age	Survey year minus the respondent's birth year
Gender	gender	0:male 1:female
Registered residence	household	0:Urban household registration 1:Rural household registration
Job type	job	0:Work for Government departments, institutions or military 1:Work in other places
Health	health	The smaller the value, the healthier
Nationality	nationality	0:Minority 1:Han nationality
Commercial pension insurance	com_old	0:No commercial pension insurance 1:Have commercial pension insurance
Commercial medical insurance	com_health	0:No commercial medical insurance 1:Have commercial medical insurance

### 3.2. Summary Statistics

Table 2 shows the descriptive statistics of the variables. The gender preferences of residents are not very prominent overall. The respondents of this data sample were mainly male, which accounts for 75.4%. Otherwise, 95.2% respondents is Han nationality, with an average age of 43, good health, and an average education level of 5 years. Most of them have urban household registration and are working in non-government or non-public institutions. In terms of wealth level, only a few people have social pension insurance and social medical insurance. The number for people who have commercial pension insurance or commercial medical insurance is even fewer. Residents' assets, especially non-financial assets, have a huge difference, far exceeding the difference in income.

**Table 2.** Summary statistics

Variables	Observision	Mean	Std	Min	Max
preference	3347	0.091	0.288	0	1
ln_income	3347	10.444	0.869	0	14.286
ln_fassets	3347	9.658	2.275	0	15.619
ln_nfassets	3347	3.03	5.578	0	15.732
soc_old	3347	0.086	0.28	0	1
soc_health	3347	0.077	0.266	0	1
ln_tassets	3347	10.327	2.643	0	16.093
education	3347	5.175	1.609	1	9
age	3347	43.554	8.82	22	80
gender	3347	0.754	0.431	0	1
household	3347	0.331	0.471	0	1
job	3347	0.848	0.359	0	1
health	3347	2.981	1.104	0	5
nationality	3347	0.952	0.213	0	1
com_old	3347	0.0186	0.135	0	1
com_health	3347	0.040	0.196	0	1

### 3.3. Model Specification and Identification

$$Prob(Y_i = 1) = \Phi(\beta_0 + \beta_1 W_i + \beta_2 X_i + \varepsilon_i)$$

Here,  $Y_i$  is a binary variable representing the fertility gender preference of the first individual,  $\beta_0$  is a constant term,  $W_i$  represents four types of variables measuring individual's wealth level,  $X_i$  is a series of control variables, and  $\varepsilon_i$  is a random interference term. The signs, magnitude and statistical significance of the coefficient  $\beta_1$  are the key research objects.

## 4. RESULTS AND MECHANISM

### 4.1. Results

From the regression results shown in Table 3, it can be seen that when income, financial assets, non-financial assets and total assets are used as the measure of wealth level and all control variables are added, the coefficients are all positive. This shows that, while keeping other explanatory variables consistent, residents with higher wealth have a stronger preference for boys than residents with lower wealth. The estimated coefficient of the income variable is 0.309, which is significant at the 5% significance level; the estimated coefficient of the total asset variable is 0.021, which is significant at the 10% significance level; while the coefficients of the financial asset variable and the non-financial asset variable are not significant. In other words, income, as a sustainable source of funds for residents, has a greater impact on residents' gender preference than other wealth components, and is more statistically significant. Compared with pure financial assets or non-financial assets, the use of total assets to measure the wealth level of residents has more economic significance, as it can better embody the core elements of modern wealth inheritance relations. Therefore, the result that the coefficient of total assets is significant and the coefficients of the two variables constituting total assets are not significant can be understood.

Among those control variables which describing personal characteristics of residents, the estimated coefficient of the education variable is negative, indicating that the more education the residents get, the less likely they would show gender preference. The reason is that people with a higher education level are more open-minded and have a stronger ability to accept birth

gender. The estimated coefficient of the household registration variable is negative, indicating that the gender preference of rural residents is weaker than that of urban residents (this conclusion may conflict with reality). The estimated coefficients of age and health variables are negative, which means that residents who are older or in poor physical condition are more neutral in their opinions on whether it is better to give birth to a boy or to give birth to a girl. This maybe because the daughter can give more care generally. The estimated coefficient of the nationality variable is also negative, indicating that minorities are more biased towards boys. The estimated coefficients for gender variables and job category variables are positive, indicating that men have more serious gender preferences than women, which may be determined by men's stronger family consciousness. Compared with residents serving in the government, institutions or the military, residents who work in other units (such as enterprises and self-employed) have a stronger preference for boys, this because the former are more likely to receive more gender equality education. In general, the results in Table 3 confirm the positive effect of residents' wealth level on fertility gender preference.

**Table 3.** The impact of wealth levels in different dimensions on gender preference

	(1)	(2)	(3)	(4)	(5)
ln_income	0.092** (-0.043)				
ln_fassets		0.018 (-0.014)			
ln_nfassets			0.006 (-0.005)		
soc_old				-0.06 (-0.121)	
soc_health				-0.045 (-0.126)	
ln_tassets					0.021* (-0.012)
education	-0.01 (-0.023)	0.003 (-0.021)	0.006 (-0.021)	0.007 (-0.021)	-0.0001 (-0.021)
age	-0.002 (-0.004)	-0.003 (-0.004)	-0.003 (-0.004)	-0.003 (-0.004)	-0.003 (-0.004)
gender	0.011 (-0.072)	0.03 (-0.072)	0.03 (-0.072)	0.034 (-0.072)	0.029 (-0.072)
household	-0.068 (-0.067)	-0.065 (-0.067)	-0.07 (-0.067)	-0.068 (-0.067)	-0.066 (-0.067)
job	0.022 (-0.089)	0.047 (-0.088)	0.048 (-0.088)	0.048 (-0.087)	0.047 (-0.088)
health	-0.007 (-0.028)	-0.009 (-0.028)	-0.01 (-0.028)	-0.013 (-0.028)	-0.007 (-0.028)
nationality	-0.108 (-0.137)	-0.109 (-0.138)	-0.1 (-0.137)	-0.098 (-0.137)	-0.098 (-0.137)
constant	-2.028*** (-0.487)	-1.311*** (-0.31)	-1.191*** (-0.295)	-1.191*** (-0.301)	-1.336*** (-0.308)
N	3347	3347	3347	3347	3347



Note: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

#### 4.2. Mechanism

**Table 4.** The impact of wealth level on residents' purchase of commercial insurance

	(1) com_old	(2) com_health	(3) com_old	(4) com_health
ln_income	0.322*** (-0.07)	0.309*** (-0.054)		
ln_tassets			0.096*** (-0.022)	0.096*** (-0.016)
education	0.006 (-0.037)	0.052* (-0.028)	0.036 (-0.035)	0.076*** (-0.026)
age	-0.007 (-0.006)	-0.002 (-0.005)	-0.01 (-0.006)	-0.004 (-0.005)
gender	-0.343*** (-0.104)	-0.265*** (-0.081)	-0.268*** (-0.102)	-0.194** (-0.08)
household	-0.262** (-0.116)	0.032 (-0.079)	-0.281** (-0.117)	0.028 (-0.079)
job	0.18 (-0.166)	0.125 (-0.113)	0.249 (-0.162)	0.205* (-0.112)
health	0.055 (-0.046)	0.011 (-0.034)	0.055 (-0.046)	0.01 (-0.034)
nationality	0.569 (-0.393)	0.111 (-0.187)	0.545 (-0.385)	0.09 (-0.188)
constant	-5.696*** (-0.867)	-5.141*** (-0.62)	-3.450*** (-0.6)	-3.024*** (-0.392)
N	3354	3354	3354	3354

Note: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Some studies believe that residents' preference for boys is based on boys' economic function which is that boys can bring a stronger labor force, more income, and more secure social and economic life to the family. If this mechanism is reasonable, we can infer that the more wealth the residents have, the weaker their preference for boys. As people have more economic space to find other insurance methods, their boy children get harder to make a marginal contribution to the family security. It is undeniable that this mechanism can still explain the boy's preference behavior that still exists in some ancient and even modern families. The results in Table 4 shows that when taking whether to purchase commercial pension insurance and commercial medical insurance as dependent variables, the estimated coefficients of income and total assets variables are positive and significant at the 1% significance level, which confirms that those residents with higher levels of income or total assets are indeed more inclined to voluntarily purchase commercial insurance other than social insurance (usually an insurance activity organized by the state). In other words, residents with high levels of wealth will look for other insurance businesses in modern society to insure themselves, and the economic and social functions that boys need to undertake for their parents are weakened by their wealth level. Naturally, according to this mechanism, the influence of wealth level on fertility preference must



be negative. However, the empirical results are contrary to the inferences of this mechanism, which shows that in addition to the negative impact of this mechanism on fertility preferences, there are other mechanisms with stronger absolute effects that play a positive role in regulating fertility preferences. Therefore, this article believes that the demand for inheritance of property is another mechanism that influences the level of wealth on gender preference for reproduction. Affected by the traditional thoughts of "receiving from the clan" of boys, common marriage patterns and ancient ways of inheriting property, residents with higher wealth levels are more worried about the gender of the inheritors of future generations of property, and pay more attention to the principle of family wealth continuity that "fertilizer does not flow to outsiders' fields". Therefore, despite the continuous improvement of the social insurance mechanism, which reduces the economic benefits of having a boy, due to the consideration of the continuation of family wealth, residents with a higher level of wealth may pay more attention to the continuation of family wealth, thus strengthening the gender preference for childbirth behavior.

## 5. CONCLUSION

Traditional research believes that the income gap between urban and rural residents is the main economic factor leading to a serious imbalance in the ratio of men and women in rural areas, and that increasing the income level of residents will alleviate this problem to a certain extent. This paper uses the probit model to draw the opposite conclusion from traditional research, that is, high wealth level will not weaken but strengthen the preference of boys. Compared with the past, with the continuous improvement of the modern social security system and the overall increase in the income level of the residents, the role of boys in supporting their parents' financial situation has been weakened, but the role of inheritance and continuation of their parents' wealth has not diminished. Under this path, the level of wealth ultimately strengthened the residents' preference for reproductive gender selection.

If we want to prevent the sex ratio at birth from rising, we must change the conditions that cause it to be too high, that is, weaken the preference of boys. To change people's gender preference concepts, we must replace them with a new type of fertility culture, though the formation of this new fertility culture only relying on unilateral short-term efforts is not effective. In China, which has a history of thousands of years, the influence of traditional culture has made people have a strong gender preference imprint in the depths of their thinking and consciousness, and has slowly developed into a psychology with strong vitality and cultural characteristics. This kind of cultural customs lags behind social changes and economic development. To change the reality of imbalanced sex ratio at birth, we must first improve the social security system, improve women's social status, and employability and other measures that can fundamentally change the economic and social causes of imbalanced sex ratio at birth. Secondly, we should deeply and persistently advocate a new reproductive culture, vigorously promote the scientific, civilized, and progressive concept of marriage and childbirth, and promote the equality of men and women, that boys and girls are equally good, and daughters are passed on to future generations. Finally, improve legislation to enable women to truly enjoy equal rights with men in terms of political rights, cultural and educational rights, labor rights, personal rights, and marriage and family property rights.

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