

# Educational Service and Fertility Intention for a Second Child Based on 810 Questionnaires

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## ABSTRACT

In order to explore the factors that affect the fertility intention for a second child, this article explored from the perspective of education, combined with questionnaire survey data and used descriptive statistical and multiple linear regression from four dimensions. It found that with the focus of a family changing from single pursuit of children in the past to the improvement of children's quality, the expectations for children's education have increased, and so the children's education cost has also increased. However, the sharing of education costs is mainly the responsibility of each family in China. The increase in education costs makes the family burden heavier, which affects the willingness of bearing the second child. At the same time, whether the level of government education service can meet social demands also has an impact on the second child's fertility intention. The result indicated that education has an influence on fertility intention for a second child, and at present most studies measure fertility intention from the perspective of cost. Therefore, the result of this research enriches the factors that affect the second child's fertility intention.

**Keywords:** *fertility intention for a second child, education expectation, education cost, education cost-sharing, education service supply level*

## 1. INTRODUCTION

According to the data published in "China Statistical Yearbook 2016", the total fertility rate of China was only 1.047 in 2015 [1]. In order to alleviate the growing problem of population aging, the 18th meeting of the Standing Committee of the 2nd National People's Congress in 2015 adopted a decision on revising the "Law of the People's Republic of China on Population and Family Planning", Government started to implement the comprehensive "two-child" policy officially at the same time. However, according to the survey data released by the National Bureau of Statistics of the People's Republic of China, the implementation of the "two-child policy" did not lead to the estimated population growth. The decrease in the number of newborns is because of family's fertility intention and fertility behaviour. Now with the development of economy and the change of cultural cognition, families pay more attention to the children's quality rather than quantity. Gary S.Becker's theory of family fertility points out that children as families "durable consumer goods", whose quantity and quality affect each other. At the same time, the income of a family has increased with the development of economy, and the focus of a family changes from single pursuit of children in the past to the improvement of children's quality, which has influenced fertility behavior. At the same time, the number of children will determine the investment in education for a single child, because each family can afford limited education resources. Now the modern family pay more

attention to their children's quality which affect the fertility intention for a second child to a certain extent, and the improvement of the children's quality means that the attention to the children's education. Therefore, most families define their children's education as the quantity and quality of the educational services that children can accept and the educational achievements they can achieve in the future.

## 2. LITERATURE REVIEW

According to the previous studies, education can affect family's fertility intentions and fertility behaviours through various ways, such as education cost and education quality. Zhangsheng Liu and other scholars thought that education affects the well-educated women's fertility intentions mainly through two channels: "income-cost" and "culture-cognition". As the cost spent on childbirth has increased and the cultural cognition has also changed, so education has a negative effect on the fertility intention for a second child [2]. According to the survey results, Wenlin Hu (2017) thought that the main factors that affect the fertility intention for a second child are: the high cost of childcare (fertility, education, child care), and insufficient public service resources (kindergarten, primary school, high school, etc.) [3]. Qing Liu (2017) took Hebei Province as an example to study if one-child families has fertility intention for a second child when facing the universal two-child fertility policy. The results indicated that because of the education costs and parental fertility

attitudes, the family's fertility intention for a second child is not high, so the policy implementation effect is not satisfactory [4]. Another part of the scholars study fertility intention for a second child from the quality of education: Ying Wang (2019) used the CGSS2015 data and built a multi-layer linear model to study the impact of regional education quality on the fertility intention for a second child. According to this research, it divided into two parts to study the fertility intention: one is income-cost and the other is culture-cognition, among them, in the part of income-cost: Education affects fertility intention for a second child through intermediate variables, such as: work conditions and family conditions; in the part of cultural-cognition: Education affects the fertility intention for a second child through intermediate variables: cultural preference, educational quantity and social satisfaction. and the results showed that the quality of regional education has a direct negative impact on the fertility intention for a second child [5].

At present, based on the research that scholars analyse the education services to the fertility intention most from the perspective of "income-cost". However, other perspectives such as: education expectations, education service supply level, education cost sharing has less research on fertility intention for a second child, so it needs to be improved in exploring the impact of educational services on fertility intention for a second child.

### 3. METHODS

Most studies analyse the influencing factors of the fertility intention for a second child from the perspective of education cost, but education cost is not the only factor that affect the fertility intention for a second child. Therefore, in order to explore whether the four factors: education expectation, education cost, education cost sharing, and education service supply level have an impact on the fertility intention for a second child, this article based on the results of 810 questionnaire surveys to study if these factors can affect the fertility intention for a second child. With the "reduction of budget restrictions" and the increase of family income, parents' quality requirements for children have replaced the demand for their children's quantity, which means that parents' expectations for education have increased, and families will inevitably increase investment in education, which will increase the cost of family education [6]. However, the sharing of education costs is mainly the responsibility of each family in China, therefore it will inevitably have an impact on the fertility intention for a second child. At the same time the availability of educational services provided by the government to meet the demands of society also has an impact on the fertility intention for a second child. Therefore based on the above analyses we proposed four following assumptions:

Hypothesis 1: The higher the educational expectations are, the lower fertility intention for family to have a second child is.

Hypothesis 2: The higher cost of education is, the lower fertility intention for family to have a second child is.

Hypothesis 3: In the sharing of education costs, the more costs the family bears are, the lower fertility intention for family to have a second child is.

Hypothesis 4: The higher level of education service supply is, the higher fertility intention for family to have a second child is.

So according to the four hypotheses, we established the following multiple linear regression model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu \quad (1)$$

In Equation (1), Y represents the fertility intention for a second child,  $\beta_0$  represents the intercept,  $\beta_1, \beta_2, \beta_3$  and  $\beta_4$  represent the regression coefficients of each variable,  $X_1, X_2, X_3, X_4$  represent four independent variables (education expectation, education cost, education cost sharing, education service supply level), and  $\mu$  represents the introduced error term.

The data resource of this paper comes from the database of the "Population Fertility and Public Service" research group. At first, in order to ensure the distribution of the survey objects covers most of the provinces and cities in China as much as possible. We adopted the method of purposeful sampling and issue questionnaires online and offline. Then we adopted the method of convenience sampling to select cities for questionnaire distribution. At the same time the respondents do not distinguish men and women, and the questionnaire was mainly focus on people of childbearing age between 18-49 years old. The questionnaire was distributed from July 1, 2017 to October 3, 2018. and at last a total of 810 valid questionnaires were collected. In terms of research content the questionnaire is divided into three parts: firstly, we measured the interviewer's individual characteristics and family characteristics (such as: age, income, occupation type, education level, marriage status); secondly, we measured the family's fertility intention for a second child: whether you have the will to have a another child; and lastly, we measured family's fertility intention for a second child through four variables including education expectation, education cost, education cost sharing, and education service supply level.

## 4. RESULTS AND ANALYSIS

### 4.1. Descriptive statistical analysis

#### 4.1.1. Measurements of fertility intention of having two children

According to this questionnaire, we collected the data of family's fertility for a second child, the specific question is: whether you have the plan to bear a second child. And as a result, 27.3% respondents chose that they plan to bear a

second child; and another 72.7% respondents chose that they will not plan to have a second child. Therefore we can conclude that most family's fertility intention for a second child is not very high. But what's the reason behind it, most studies thought that the time, money, etc spent on the first child is too much, which can make the family burden become heavier, reduce the family's fertility intention for a second child, and then may even affect the fertility behaviour. So based on the findings of this questionnaire, we focused on the education service, which included four variables: education expectation; education cost; education cost sharing; and education service supply level. And study whether the four variables influence the fertility intention for a second child.

#### *4.1.2. Analysis of education expectation*

In the investigation of education expectation, the specific question is: "what's degree of final education do you expect your children to achieve". According to the recovery data, 23 people chose high school degree accounted for 2.84%; 294 people chose bachelor's degree accounted for 36.3%; 320 people chose master's degree accounted for 39.51%; and 173 people chose doctor's degree accounted for 21.36%. According to the survey result, we can conclude that the general educational requirements of parents for their children are bachelor's degree and above. With the higher expectations for children's educations are, the higher expectations for children's degrees are. Therefore, when parents choose to have a second baby, they will compare the family's current economic income level with the analysis of their education investment. Particularly, now social competition is intensifying, therefore under the influence of the social environment, education degree is closely connected with salary, job title, and promotion opportunities. When society uses education background as the criterion for talent judgment, families must have high expectations for their children's education, and then the pursuit of children's quality has replaced quantity as an important factor for families to consider reproductive behaviour.

#### *4.1.3. Analysis of education cost*

In the investigation of education cost, pre-school education expenses in education costs are the primary expenditure in the family education expenses, and it's different from basic education, the pre-school education expenses are fully borne by the family, so whether the pre-school education expenses can be afforded will affect the family's fertility intention for a second child and may even effect the family's fertility behaviour. Therefore, in this questionnaire the specific question is "Do you think the cost incurred by the child in (or will be in) kindergarten is high?" According to the recovery data, there were 23 respondents indicated that the fee of kindergarten was less, which has accounted for 2.84% of all the respondents; 35

respondents chose the fee of kindergarten was low, which has accounted for 4.32% of all the respondents; 202 respondents thought the fee of kindergarten was average, which has accounted for 24.94% of all the respondents; and 361 respondents chose the fee of kindergarten was higher, which has accounted for 44.57% of all the respondents; 132 respondents chose the fee of kindergarten was very high, which has accounted for 7.04% of all the respondents, 57 respondents chose they were unclear for the fee of kindergarten, which has accounted for 7.04% of all the respondents. The severe results shows that 493 people thought the cost of pre-school education was high and very high. In recent years, as people pay more attention to the children's education, the growth rate of education costs has doubled and exceeded the growth rate of family income. When the education cost exceeds the expectation of the family, it will inevitably have an impact on the fertility intention for a second child. And fertility will bring additional costs, which included two types, one represent the direct costs: the monetary expenditures which means parents spend money on children; the other represent the indirect costs, namely opportunity costs: mainly refers to the non-monetary expenditures that parents spend on their children, it means when parents stay at home to raise their children, parents or one parent will miss career promotion, skill training or may even terminate their business [7]. The cost spend on fertility is also an important factor that affect the family fertility choices.

#### *4.1.4. Analysis of education cost sharing*

In the investigation of education cost sharing, the specific question is "which situation do you think is the current education cost sharing?" According to the recovery data, 303 respondents chose private investment is the main and government investment supplements, which has accounted for 37.14% of all the respondents; and 287 respondents chose private and government investment are equal, which has accounted for 35.14% of all the respondents; at the same time 22 respondents chose the government is the main and the private is the auxiliary, which has accounted for 27.16% of all the respondents. From the result of this research, although education cost sharing does not show serious polarization and the overall distribution is even. However, from this research we can also conclude that private is an important part of education investment and accounts for a relatively large proportion. This is consistent with actual education cost sharing in our country. In traditional Chinese education investment, each family is the main body of education cost sharing, the excessive education investment costs, not only make the burden of urban low-income families and rural families behavior, but also reduce the opportunities for children to continue study or enter the top university, and may even cause new poverty risks--educational poverty because of excessive costs [8].

**4.1.5. Analysis of education service supply level**

In the investigation of the education service supply level, at the early childhood stage, the education service supply level is the primary issue that families consider when making fertility decisions for a second child. The specific question in this survey is: "How many public kindergartens are there near your home". According to the recycling data, there were 197 respondents thought the number of kindergarten was small, which has accounted for 24.32% of all the respondents; 257 respondents thought the number of kindergarten was relatively small, which has accounted for 31.73% of all the respondents; 203 respondents thought the number of kindergarten was OK, which has accounted for 25.06% of all the respondents; 42 respondents thought the number of kindergarten was large, which has accounted for 5.19% of all the respondents; 19 respondents thought the number of kindergarten was large, which has accounted for 2.35% of all the respondents; and 92 respondents thought they were unclear the number of

kindergarten, which has accounted for 11.36% of the respondents. According to the result of this research, we found that 454 respondents thought the number of public kindergartens nearby is too small to meet the demands of families. For various practical reasons, although our country has vigorously developed basic education, the educational services provided by the government still cannot meet the demands of the national.

**4.2. Multiple linear regression analysis**

According to the data analysis results in table 1, the fitting degree of the equation is general, which has indicated that there are more important variables that have not been included in the regression model. However, the DW test value is 1.827 close to 2. It has indicated that the regression equation can fully explain the changing law of the dependent variable, meeting the sample independence.

**Table 1.** Regression Model analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.145a	0.021	0.016	2.27	1.825

And at the same time, according to the results in table 2 the tolerances of the four variables are close to 1, and the VIF

value is very small, which has indicated that there is no collinearity among the variables.

**Table 2.** Regression analysis results

	Education expectations	Education cost	Education cost sharing	Education service supply level
<b>Tolerance</b>	0.991	0.936	0.995	0.94
<b>VIF</b>	1.009	1.069	1.005	1.064

**5. CONCLUSION**

With the development of economy, the family income has increased. At the same time family pays more attention to their children's quality rather than quantity, which means that the family's expectations for their children's education have increased, therefore the investment in children's education has also increased, which is the education cost spend on their children has increased. However, the sharing of education costs is mainly the responsibility of each family in China. The increase in education costs makes the family burden heavier, which affects the fertility intention for family to have a second child. At the same time, whether the education service supply level provided by the government can meet social demands also has an impact on the fertility intention for a second child. But this article also has some shortcomings: the questionnaire for some important variables is not covered. For this future research, the questionnaire design should be strengthened, and the comprehensiveness and rationality of the indicators should be considered to make the research results more accurate.

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