

# Empirical Research on the Impact of Child Gender on Household Happiness

Niu Yuxin<sup>1\*</sup>

<sup>1</sup>Chengyang No.1 Senior High School, No.398 Chongqing North Road, Qingdao, Shandong

\*NIU yuxin: wangqixin3@126.com

## ABSTRACT

The gender of children affects household happiness, labor supply of parents, economic expenditure and consumption capacity. Exploring the influence of children's gender on family happiness can help us to understand the micro family decision-making mode and family consumption structure, which is of importantly theoretical and practical significance. This paper use China Household Income Project (CHIP) data to study and analyze the influence of the gender of children on family happiness by taking the average monthly minimum consumption of non-necessities as the proxy variable of family happiness. The results show that if the gender of a child is male, this will exert a negative influence on the average monthly household expenditure on non-necessities, that is, a boy has an inhibitory effect on family happiness.

**Keywords:** *sex ratio; household happiness; empirical research*

## 1. INTRODUCTION

Before 1982, Chinese couples could continue to give birth until they were satisfied with the number of sons, daughters, or mix that they desired. A series imbalance in child gender, especially in the sex ratio at birth increased. Chinese couples had a strong preference for boys. There were both historical and economic reasons for this phenomenon. Due to the small-scale peasant economy in China's history, it was widely believed that men were the main body of the family, while women had only a minimal supporting role in the family. However, with the continuous development of economy and society, people's ideas have gradually changed. In this process, giving birth to a boy or a girl has always been one of the most concerned issues in every family, and the phenomenon of son preference still exists in modern families. It can be said that having a boy or a girl has an important impact on the Chinese families. To some extent, the gender of children affects household happiness, labor supply of parents, economic expenditure and consumption capacity. Exploring the influence of children's gender on family happiness can help us to understand the micro family decision-making mode and family consumption structure, which is of importantly theoretical and practical significance. However, relative literature is still scarce. This paper aims to make a quantitative empirical study of the effect.

This paper use China Household Income Project (CHIP) data to study and analyze the influence of the gender of children on family happiness by taking the average monthly minimum consumption of non-necessities as the proxy variable of family happiness. The results show that if the gender of a child is male, this will exert a negative influence on the average monthly household expenditure on non-necessities, that is, a boy has an inhibitory effect on family happiness.

The following arrangements of this paper are as follows: The second section collates and reviews relevant literature; The third section explains the research methods of this paper, including model setting, data sources and regression methods. The fourth section Analysis of research results; Finally, the research conclusion is summarized.

## 2. LITERATURE REVIEW

By using the least squares method and the data of 2003-2009 from Chinese Rural and Urban Household Survey and China Health and Retirement Longitudinal Study (CHARLS), Chen (2014) studied the mechanism of the influence of children sex on parents' labour supply and metastasis payment. <sup>[1]</sup> The results showed that the input-output ratio of boys' families is higher than that of girls in urban areas of China, and the happiness of parents in boys' families decreased. It was concluded that male births were not necessarily better than female births. The study of Wei and Zhang (2009) analysed the serious

imbalance of male to female ratio, and found that when boys grow up, the survival cost was higher, which led to the parents who had male children to reduce current consumption, and in order to get more income for saving, they had to actively participate in the labour markets. [2]Xu et al. (2012) used the fixed-effect regression, systematic GMM and differential GMM estimation methods to analyze the impact of relevant variables such as sex ratio and the family size on household consumption, and found that the consumption expenditure of boys' families was higher than that of girls' families. [3] Gong et al. (2010) discussed the influence of gender of children on household utility from the aspect of adult consumer goods expenditure. The research found that gender preference for boys made families with boys consume less tobacco, alcohol and other adult goods than those with girls. [4]Raley and Bianchi(2006) found that fathers' investments in children were higher and they spent more time with children if they had more sons than daughters. [5]A lot of literature found that parents could gain different pleasure when they saw their sons and daughters grow up and did certain activities with them (Hoffman and Manis, 1979<sup>[6]</sup>; Bulatao 1981<sup>[7]</sup>). For example, they tend to be more enjoyable when they were doing sports and outdoor activities with sons but going shopping with daughters was more pleaded. Parents' happiness could differ if they get to do more or less of these things that they value, based on sex combinations of the children. In addition, parents may value variation.

Based on the above research, from perspective of the consumption, this paper uses the latest data from China Household Income Survey (CHIP) to study the impact of the gender of children on family happiness. To track the dynamics of income distribution in China, the China Household Income Survey (CHIP) has conducted five household surveys in 1989, 1996, 2003, 2008 and 2014. They collected income and expenditure information for 1988, 1995, 2002, 2007 and 2013, as well as other household and personal information. All CHIP data included surveys of urban and rural households. In view of the increasing practical significance of rural-to-urban migration and the fact that the sub-sample of urban and rural households does not cover all the floating population, CHIP's survey also included floating population. This paper uses the average monthly minimum consumption of non-necessities as the proxy variable of the household happiness.

**3. EMPIRICAL ANALYSIS**

The model of this paper is set as follows:

$$Y = \alpha + X\beta + \gamma Z + \varepsilon$$

Where, *Y* is the dependent variable. this paper takes the monthly minimum non-necessities as the proxy variable of family happiness;  $\alpha$  is the intercept term, and *X* is the core explanatory variable. The core explanatory variable in this paper is the gender of the child, and the

variable is denoted as core. If the family has a male child, core would be 2; if the family has a female child, core would be 1; if the family has no children, core would be 0.  $\beta$  is the regression coefficient of the core explanatory variables. *Z* denotes a series of control variables. Based on the related academic literature, the control variables of this paper include: the number of family, education level of fathers, education level of mothers, fathers' health level, mothers' age health level, age of the fathers, age of mothers, denoted by size, income, eduf2, healthf, agef, edum2, healthm, agem, agefsq, agefsq, respectively for the.  $\gamma$  is the regression coefficient of the control variable.  $\varepsilon$  is the random error term, which is assumed to be the standard normal distribution in this paper? Table 1 shows descriptive statistics of variables.

**Table 1** Summary Statistics of Observables

Variables	(1) N	(2) Man	(3) S.D.	(4) Mn	(5) Max
income	3727	27.71	350.7	0	10250
size	3727	3.305	0.773	2	8
core	3727	1.444	0.497	1	2
eduf2	4956	11.09	3.555	0	35
healthf	4987	2.394	0.768	1	5
agef	4999	50.71	12.84	19	92
edum2	4404	10.84	3.449	0	31
healthm	4447	2.414	0.766	1	5
agem	4465	49.11	12.33	22	90
y	5000	397.7	537.1	0	14570
agefsq	4999	2736	1369	364.4	8484
agemsq	4465	2564	1269	488.9	8118

**4. REGRESSION ANALYSIS**

**Table 2** Regression Results

Model	OLS	MLE
<b>core</b>	34.770* (20.658)	34.770* (20.624)
<b>size</b>	2.16* (15.09)	2.31* (14.98)
<b>income</b>	0.019* (0.028)	0.019* (0.028)
<b>eduf2</b>	12.390*** (4.057)	12.390*** (4.051)
<b>healthf</b>	26.427 (19.300)	26.427 (19.269)
<b>agef</b>	16.788 (12.628)	16.788 (12.608)
<b>agefsq</b>	0.133 (0.126)	0.133 (0.125)

<b>edum2</b>	16.175*** (4.180)	16.175*** (4.173)
<b>healthm</b>	22.695 (19.568)	22.695 (19.536)
<b>agem</b>	13.497 (12.341)	13.497 (12.321)
<b>agemsq</b>	0.115 (0.127)	0.115 (0.127)
<b>constant</b>	169.323 (200.427)	169.323 (200.099)
<b>observations</b>	3366	3366

Table 2 shows the regression results. Column2 is the results with the Ordinary Least Square method and Column3 is the results with Maximum Likelihood Estimate method. The Ordinary Least Square method is a kind of parameters estimation method based on the minimum sum of squares of residual which is difference between the observed and estimated values. This method has less requirements on the population distribution and sample size, and does not require to know the specific form of the population distribution. The Ordinary Least Square method can be applied to small sample data and has good estimation properties under small sample conditions. The optimal linear unbiased estimator satisfies the classical assumption.

However, based on the Maximum Likelihood Estimate method, it believes that the most reasonable parameter estimator should be the estimator that maximizes the probability of sampling the observed values of  $n$  groups of samples after random sampling. The premise of using Maximum Likelihood Estimate method is that the specific distribution of population variables is known, and the general assumption is that the distribution is normal. If the hypothesis is true, the maximum likelihood estimator is more efficient than the least squares estimator.

In the regression of this paper, the explained variable is the lowest monthly household expenditure on non-necessities, which this paper believes can represent the household happiness from the perspective of consumption. The core explanatory variable is the sex of children. It can be seen from the table that the coefficient of the core explanatory variable is -34.77 in both OLS model regression and MLE model regression, and significantly does not equal to zero at the level of 90%. This indicates that the gender of children has a significant impact on the monthly minimum expenditure on non-essential consumer goods. A negative sign indicates that boys can suppress the minimum monthly household expenditure on non-essential consumer goods. The results are consistent with other studies. The father's

educational background has a significant influence on the monthly minimum non-essential consumer goods expenditure of the family. In both OLS and MLE regression, the regression coefficient is 12.390, which is significant at level of 99%. This shows that the improvement of the father's education level can promote the family monthly minimum consumption of non-necessities. The mother's educational background has a significant influence on the monthly average minimum non-essential consumer goods expenditure of the family. In both OLS and MLE regression, the regression coefficient is 16.175, which is significant at the level 99%. This shows that the improvement of the father's education level can promote the family monthly minimum consumption of non-necessities. The improvement of the father's education level has less effect on the monthly minimum non-necessity's consumption than the improvement of the mother's education level. One possible reason is that the mother is often the main body of making consumption decisions in the family, so the change of the mother's personal situation has a greater impact on the family consumption.

## 5. CONCLUSION

This paper uses the data of China's household income survey, takes the minimum monthly household expenditure on non-necessities as the proxy variable of family happiness, and USES OLS model and MLE model to estimate the influence of the gender of children on family happiness. The results showed that boys had a negative effect on family happiness, which is inconsistent with the still existing concept of son preference in Chinese society. Households with boys spend less on non-essential items than households with girls. Regardless of the traditional idea of procreation, son preference is a loss of welfare for parents and family. Instead of pursuing the illusory clan idea, we should pursue the real happiness. Increase consumption, improve happiness.

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