

# Study on the Influence of Female Labor Participation Rate Based on A Logistic Regression Model

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**Abstract**—With the development of China's economy, China's female labor participation rate has maintained a high level for a long time, but this rate is decreasing. Through a questionnaire survey, statistical analysis and other methods, this paper analyzes the impact of family on women's labor participation rate, divides family factors into spouse's work nature and time, family support and family income, and constructs a logistic regression model. Through Stata data analysis, it is concluded that family factors have a significant impact on women's labor force participation rate. Therefore, in order to deal with the relationship between family and women's work, improve women's labor participation rate and let women actively obtain employment, some suggestions are put forward according to the influence of family factors.

**Keywords**-family factors, female labor participation rate, employment

## 1 INTRODUCTION

With the continuous development of society, the national culture and quality are constantly improving. After receiving a good education, women become more independent and more willing to actively participate in the labor market. Through literature review, it is found that the family care burden of female caregivers is increasing under the background of population aging<sup>[1]</sup>. Marriage is an important factor affecting women's labor participation<sup>[2]</sup>. Because fertility will not only significantly reduce women's labor participation rate, but also have a significant negative impact on the working time investment and labor income level of employed women<sup>[3]</sup>. In particular, it is necessary to take care of children and the elderly at the same time. At this time, the female labor participation rate and working time both decline<sup>[4]</sup>. Su Qun et al. Confirmed that housework and child care can significantly inhibit women's labor participation and reduce their market labor time<sup>[5]</sup>. Chen Zhifan also confirmed that the increase of children's education investment will increase women's labor supply<sup>[6]</sup>. The female labor participation rate has become a hot social problem in China, so this paper analyzes the relationship between family factors and female labor participation rate in detail.

## 2 DATA SOURCE AND STATISTICAL ANALYSIS

This paper adopts the questionnaire survey method, which can be divided into paper questionnaire surveys and network questionnaire surveys according to different carriers. This paper mainly adopts the network questionnaire survey, that is, users rely on some online

questionnaire websites, which provide a series of services such as designing questionnaires, issuing questionnaires, analyzing results and so on. Before the formal survey, the pre-survey of the questionnaire is carried out. First, ask the teacher and students to fill in the questionnaire in the form of a word in the class. In this pre-survey, it was found that there were few topics, which were not comprehensive and specific enough, and they were revised after confirmation. The questionnaire star was used to design the questionnaire, and the questionnaire was distributed online through a microblog, WeChat and QQ. Finally, 233 questionnaires were recovered.

## **2.1 Reliability and validity test**

Analyze the reliability and validity of the questionnaire data to ensure the rationality and scientificity of the questionnaire data. We tested the scale with STATA. The specific analysis is as follows:

### **2.1.1 Reliability analysis**

This paper uses Cronbach's alpha to analyze the reliability of the questionnaire, which is mainly used to evaluate the internal consistency of the questionnaire,  $\alpha$ . The coefficient value is between 0 and 1,  $\alpha$ . The higher the coefficient, the higher the reliability of the questionnaire and the better the internal consistency of the questionnaire. Generally speaking, the questionnaire is  $\alpha$ . When the coefficient is above 0.7, the questionnaire has a use-value, because the reliability of the questionnaire is very high. When the coefficient is 0.5-0.7, the questionnaire is credible, and when the coefficient is 0.7-0.9, the questionnaire is credible. As can be seen from Table 1 below, the overall  $\alpha$ . If the coefficient is 0.8917, the overall reliability of the questionnaire is high and reliable.

### **2.1.2 Validity analysis**

This paper uses the kmo and Bartlet test, which is mainly used to compare the simple correlation coefficient and partial correlation coefficient between variables, and to investigate whether the scale is suitable for factor analysis. The kmo statistics are values between 0 and 1, which are usually interpreted according to the following criteria, and the size of the kmo (sampling adequacy) value. The validity of the questionnaire can be determined according to Table 2 below. Generally speaking, when the sum of squares of simple correlation coefficients among all variables is much greater than the sum of squares of partial correlation coefficients, the closer the kmo value is to 1, which means that the stronger the correlation between variables, the more suitable the original variables for factor analysis. When the square sum of simple correlation coefficients between all variables is close to 0, the closer the kmo value is to 0, which means that the weaker the correlation between variables is, the less suitable the original variables are for factor analysis. It can be seen from Table 2 that the kmo value of this questionnaire is 0.838, close to 1, greater than 0.70, and the p-value of 0.000 is less than 0.05. Therefore, this questionnaire has high validity and is suitable for factor analysis.

**Table1** Reliability Analysis

Test scale = mean (unstandardized items)	
Average interitem covariance:	.8343169
Number of items in the scale:	3
Scale reliability coefficient:	0.8917

**Table2** Validity Analysis

Kaiser-Meyer-Olkin	.838
Bartlett's sphericity test	542.536
Approximate chi-square	3
df	.000
Sig.	

## 2.2 Descriptive statistics of the sample:

This survey is mainly aimed at women, so in the process of issuing the questionnaire, it is mainly married women. Therefore, the number of women answering the questionnaire is high, accounting for 60% of the total survey level. And the overall age of the sample is 25-35 years old, accounting for 40% of the total survey level. Most of the education is undergraduate, accounting for 48.93% of the total survey level.

Among them, 70.39% of the respondents have participated in work, and more people have worked for 3-5 years. The marital status is that 60.52% of people are married and have more children, and the monthly salary is mostly between 4000-6000. At present, the female labor participation rate accounts for 59.8% in China. Therefore, if we want to improve the female labor participation rate, we must find a way to deal with the relationship between family and female work.

**Table3** Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Gender	233	1.601	.491	1	2
Age	233	2.961	1.68	1	6
Education	233	1.966	.776	1	4
Working years	233	2.657	1.362	1	5
Marital status	233	2.064	.961	1	4
Monthly wage level	233	2.97	1.421	1	5

## 2.3 Correlation analysis

It is generally considered that the correlation coefficient R is very strong between 0.8-1.0. There is a strong correlation between 0.6 and 0.8; 0.4-0.6 is a moderate correlation; there is a weak correlation between 0.2 and 0.4; 0.0-0.2 is a very weak correlation or no correlation. Results from the expression in the paper are as follows: from Table 4, it can be seen that there is a linear correlation between women's satisfaction with marriage and the distribution of housework, and whether housework is reasonably distributed has a great impact on women's satisfaction with marriage, with a correlation coefficient of 0.868 at the level of 0.01 (bilateral). This shows the importance of rationalizing the distribution of domestic labor services,

indicating that other members of the family should pay more attention to women's ideas. And after investigation, it is found that in most families, housework is undertaken by parents, which is great support for female workers. Reducing housework time can reduce a lot of burden for female workers, which is a very beneficial thing for female workers. According to the individual labor supply curve and family labor supply mentioned in labor economics: female workers have to sacrifice their spare time to do housework in addition to working time, which greatly increases the working time and workload of female workers. Therefore, housework may affect the female labor participation rate to a great extent. In the above results, parents mainly undertake housework, which has a great positive impact on women's labor participation rate.

**Table4** Correlation analysis

		Marital satisfaction	Household work distribution
Marital satisfaction	Pearson correlation	1	.868**
	Significance (bilateral)		.005
	N	233	233
Household work distribution	Pearson correlation	.868**	1
	Significance (bilateral)	.005	
	N	233	233

## 2.4 Hypothesis test

This paper is a model based on logic. It is assumed that the dependent variable Y is a binary variable, indicating whether family factors will affect women's labor participation rate, 1 means to affect women's labor participation rate, and 0 means not to affect women's labor participation rate. Among them, family factors are divided into three small parts, that is, there are three independent variables related to dependent variables, namely: the nature and time of spouse's work, the support given by family and family income, which are recorded as  $X = (x_1, x_2, x_3, x_4)$ . Therefore, the following assumptions are put forward:

General hypothesis: family factors have a significant impact on women's labor participation rate

Hypothesis 1: the nature and time of a spouse's work have a significant impact on women's labor participation rate

Hypothesis 2: the support given by family has a significant impact on women's labor participation rate

Hypothesis 3: family income has a significant impact on women's labor participation rate.

Through data analysis by using stata15, the specific results are shown in Table 5 below:

It can be concluded from the above that  $Y = 0.575x_1 + 0.161x_2 + 0.218x_3 + 0.102$ ,  $x_1$  and  $x_3$  are significant at the level of 0.01, hypothesis 1 and 3 are true,  $x_2$  is significant at the level of 0.05, and hypothesis 2 is true. The three sub hypotheses are true, so the total hypothesis is true. Family factors have a significant impact on women's labor participation rate. To sum up: the nature and time of my spouse's work, the support my family will give me at work, and the family's income that can meet the family's expenditure all have an impact on women's work. Among them, it is believed that the deepest impact is that the family will share housework and

help take care of children, and the family's income that can meet the family's expenditure. Therefore, the female labor participation rate is closely related to family factors.

**Table 5** Linear regression

Y	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval	Sig
X1	.575	.061	9.48	0	.456	.695	***
X2	.161	.063	2.57	.011	.038	.284	**
X3	.21	.056	3.76	0	.1	.319	***
Constant	.102	.192	0.53	.597	-.277	.48	
Mean dependent var		3.850		SD dependent var		1.155	
R-squared		0.651		Number of obs		233.000	
F-test		142.095		Prob > F		0.000	
Akaike crit. (AIC)		490.597		Bayesian crit. (BIC)		504.401	

\*\*\* p<.01, \*\* p<.05, \* p<.1

### 3 SUGGESTION

The investigation shows that the main sources of women's work and family conflict include high work pressure, heavy workload, excessive pursuit of work recognition and too much time at work; there is also pressure from spouses, parents and children, who need to take care of others' emotions, support the elderly, educate children, excessively pursue family recognition and invest too much time in the family. Finally, we have to face the pressure of housework. Therefore, in order to help women find the balance between work and family, this paper puts forward the following three suggestions.

#### 3.1 Communicate honestly and understand each other.

In most cases, after fully understanding his wife's career, ideals and plans, the husband will willingly help his wife.

Therefore, a wife has the responsibility to tell her husband her career, ideals and plans so that the other party can fully understand them. The key to getting along with your husband is to see what kind of mentality you use to manage this relationship. Take time to chat with your husband as much as possible, so that the other half can feel their important value and the dignity and dignity of men. In the process of communication, you should pay attention to your heart, pay attention to strategy, pay attention to your way of speaking and tone, and don't make the other party feel a sense of distance.

#### 3.2 Self-seeking

Guide the correct cognition of the imbalance between work and family, spend time in a balanced way and participate in beneficial activities. Maybe they are busy with work, socializing and traveling. They know why they give their family what they need, but they still quarrel with him. The problem is that people who work outside can't find a balance between work time and family time. Although men and women become one after marriage, depend on

each other and complement each other's needs. Husband and wife should also try their best to cultivate personal interest and independence to make individuals more mature. The manager should encourage the other party to use their spare time to do something useful, such as participating in social service work or learning new technology, so that they can not only live meaningfully, but also cultivate their temperament and enrich their life. Neither husband nor wife knows when they will die suddenly. Over-dependent life makes it difficult for any party living alone to adapt to lonely days, so we must cultivate more independence.

### **3.3 Find a good combination point.**

Putting life and work together, planning, completing your housework in a planned way, completing all errands in one trip, purchasing in batches as much as possible, etc. This is an effective way to save time and have fun. Similarly, make a family calendar that includes all important dates. Don't forget to celebrate the birthday of the child, the elderly and the husband, so as to win more understanding and support from the family. I always believe that it is a woman's duty to remember some important days of her family. Career women generally have a clear pursuit of bearing certain responsibilities, busy work and tight time. If it is unrealistic to ask them to treat their husbands like ordinary women, it is important to pay attention to the quality of care and take care of critical links at critical moments. To do this, you need to know what your husband and children's special hobbies are and when they need you most. If some husbands want to have their wives accompany them to taste the tea and listen to the play on weekends; some husbands like family outings on holidays; some husbands attach great importance to birthdays, wedding anniversaries and other commemorative times; children ask their mothers to attend the parents' meeting and so on. Such things are generally noticed with little attention. As women, they should arrange their agenda whenever possible to meet their spiritual needs as much as possible.

## **4 CONCLUSIONS**

We should find a balance in allocating time and energy. The most important thing is to make the other party understand their career and ideals, and make the other party a good partner in their career. If the husband regards his wife as a part of his life, the wife must be of great help to his husband's career. In family life, both parties should understand the differences between the sexes, try to understand each other's needs and take the initiative to solve family problems. If one party has taken up most of the family responsibilities, the other party should at least be grateful. When you come back from work, even if you are tired, you should come out at some time to listen to the complaints of your family. If they need your comfort, this is your chance to return, because he has paid a great price for you. In addition, give your husband some space and freedom, but the kite line is always in your hand. If you can do this, I believe you will have a perfect career and a harmonious and happy family at the same time.

## REFERENCES

- [1] Chen L, Fan H L. (2016) Will family elderly care reduce women's labor participation rate— Empirical analysis based on two-stage residual intervention method [J]. Population Research, 40 (03): 71-81.
- [2] Chen J, Liu Y F. (2019) The influence of marital status on women's labor participation -- an investigation of the endogeneity of participation [J]. Population Journal, 41 (04): 28-40.
- [3] Zhang K S, Gu J S. (2020) Study on the impact of fertility on female employment [J]. Population and economy, 5: 19-29.
- [4] Wu Y H, Liu B, Li J C. (2017) Heterogeneity of the impact of family elderly care on women's employment [J]. Population and economy, 5: 12-22.
- [5] Su Q, Li X, Chang X. (2020) Family work, family structure and rural married women's labor participation -- Panel Data Analysis Based on CHNS [J]. Journal of agriculture and forestry economic management, 19 (02): 227-234.
- [6] Chen Z F. (2021) Research on the impact of children's education investment on women's labor participation [J]. Educational economic review, 6 (05): 83-104.