

The Influence of Spouse's Commuting Time on Wife's Labor Participation

-- An Empirical Study based on the Data of China Family Panel Studies

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Abstract

This article studies the female labor participation rate from the perspective of spouse's commuting time, and uses the China Family Panel Studies (CFPS) to empirically test the influence of husband's commuting time on wife's labor participation. The study found that the increase of the husband's commuting time significantly reduced the wife's labor participation rate. Furthermore, the spouse's commuting time has a more significant impact on women's labor force participation rate for those spouse's who is less educated, the number of children under 6 years old at home with 2 or more and not living with parents (in-laws).

Keywords

Married women; Labor participation rate; Commuting time.

1. INTRODUCTION

Labor participation reflects the active degree of labor's participation in market economic activities and plays an important role in economic growth and social development. Women's labor participation not only plays a key role in increasing women's economic empowerment and promoting gender equality, but also an important factor in increasing the level of labor supply (Goldin, 1992; Anderson and Mukesh, 2009). In the past few decades, the global female labor participation rate has undergone major changes, making it an important research issue for economists. According to data from the Department of Labor of the National Bureau of Statistics, China's female labor force participation rate reached 68% in 2018, surpassing most developed countries and ranking first in the world. At the same time, the complete data of the World Bank shows that although the female labor force participation rate in China has been maintained at a high level, it has experienced a continuous decline from 1990 to 2017. As shown in Figure 1, The participation rate dropped from 73% in 1990 to 63% in 2017.

The current common view is that the female labor participation rate can be explained by many factors such as age, income, fertility, education level, and elderly care. However, with the deepening of labor supply research, scholars have found that commuting has become increasingly An important factor affecting labor participation. Commuting refers to the transportation from the place of residence to and from the place of work. With the development of urbanization and transportation, the phenomenon of separation of place of residence and place of work has become more and more significant; "separation of work and residence" means the increase in commuting distance and commuting time. Commuting problems not only occupy the time of life and work and increase economic costs, but also affect the mood at work and reduce life satisfaction and happiness. As shown in Figure 2 and Figure 3: Among the top 10

cities in GDP ranking in 2017, the average commuting distance of male commuters was 9.3 kilometers, and that of females was 8.6 kilometers. The average distance of male commuting was 500 meters longer than that of females; the average commuting time of male commuters was 45.8 minutes, and the commuting time for women is 44.2 minutes. The average commuting time for men is 1.6 minutes longer than that of women.

On the one hand, the female labor participation rate is declining year by year, and the other is the increasing commuting time. Compared with men, women’s commuting distance is shorter and the commuting time is shorter. Then, is the commuting time related to the female labor participation rate? If so, what will the relationship between the two changes look like? This article attempts to explore the factors affecting female labor participation from this perspective. Because married women account for a large proportion of the country’s total population, their labor participation is lower than unmarried women, and there is greater room for improvement, and the labor participation rate of married women is affected by the decision of the husband. Therefore, this article focuses on the labor participation of married women. The research in this area is crucial to reveal how China’s current employment policies are timely adopted to increase the labor participation rate of married women.

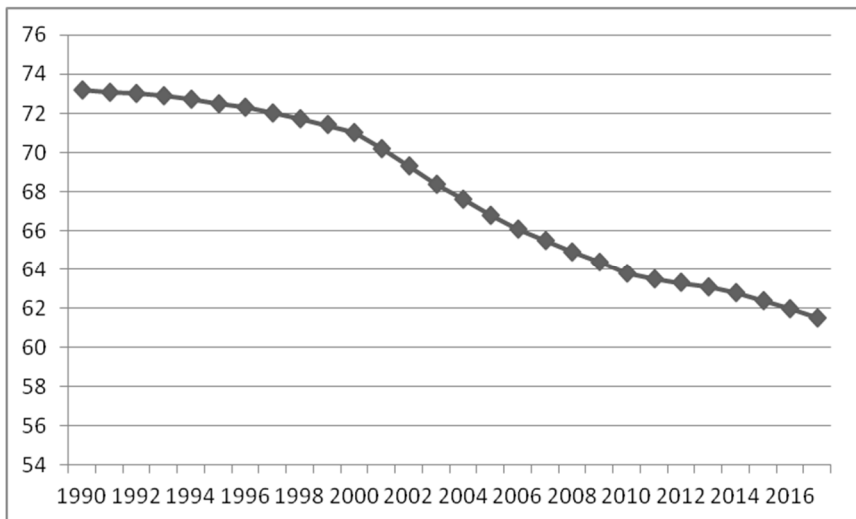


Figure 1. Changes in my country's female labor force participation rate from 990 to 2017

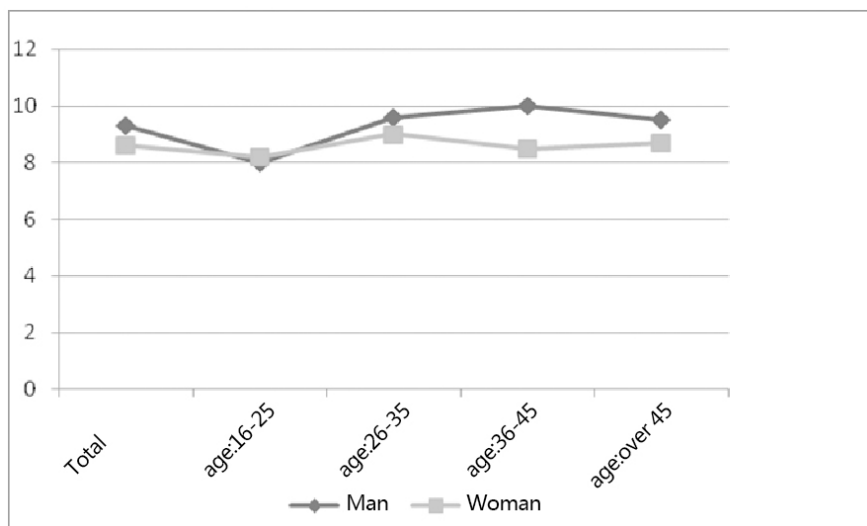


Figure 2. Differences in commuting distances of people of different genders and ages

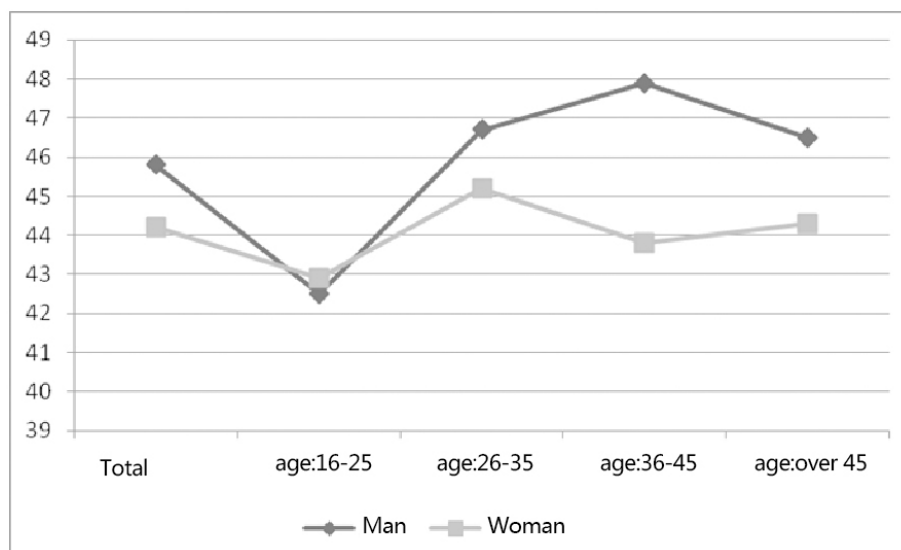


Figure 3. Differences in commuting time between people of different genders and ages

2. RELATED LITERATURE

Classical economic theory divides the laborer's time into labor and leisure. Whether to participate in labor and the length of labor is the result of individuals weighing consumption and leisure to maximize personal utility, but this has a strong explanation for the analysis of male labor supply. When analyzing the labor supply of married women, it is obviously insufficient. The neoclassical family division of labor theory incorporates family structure factors into the analysis of individual labor supply, and proposes that each member of the family will, based on their own production efficiency in the labor market and non-labor market, find employment in sectors with more comparative advantages in order to maximize employment. Total family benefit. Women's physiological characteristics give them a comparative advantage in family production, so men often take on the responsibility of supporting their families and obtaining social status, while women take on responsibilities such as nurturing children, housework and caring for the elderly. As stated in the classic literature of labor economics, a person's labor supply decision will be affected by many factors, especially for married women. In addition to personal factors, factors such as family assets, husband's income level, and children's conditions will all affect it. Its labor supply options.

Due to relatively low wages and relatively high family responsibilities, married women tend to choose short commutes and the supply of labor is more flexible. Shinichiro Iwata et.al (2013) used the theoretical model of dual-income households and found that the commuting time of married women follows the reverse bending pattern of the wage rate to obtain more leisure time; Black et.al (2014) use Cross-sectional changes in the average commuting time of 50 major cities in the United States, researching the impact of husbands' commuting time and wife's labor supply, the results show that an increase in the average commuting time of living cities will cause wives to withdraw from the labor market; Francesca Carta et.al (2018) A single family model was established and found that a 1% increase in the distance between a husband's commute and work would reduce the wife's employment probability by 0.016 percentage points and increase his own working hours. For couples with children and well-educated husbands, this The impact is more obvious.

The existing domestic research on female labor participation mainly involves elderly care, child care, family income, etc. There is no relevant literature that explores the husband's commuting time to the wife's labor participation. For this reason, this article takes this as the

focus of research in order to understand the current situation. There are literatures to supplement and provide a richer empirical basis for promoting female employment.

3. DATA, VARIABLES AND MODELS

3.1. Data Sources

The data used in this article comes from the China Family Panel Studies (CFPS) conducted by the China Center for Social Science Survey (ISSS) of Peking University. The data covers 25 provinces/cities/autonomous regions in China with a sample size of 16,000 households, covering communities, households and The three levels of individuals, including adult, child, family and community information, have good national representation. In order to study the impact of husband's commuting time on wife's labor participation, this paper selects survey data in 2010, 2014 and 2016 for the following reasons: First, the data for these three years contains the core variables of this paper, namely women's labor participation information and The information on the commuting time of the spouse, and covers the characteristic variables of the individual, family, and region, provides a solid data basis for a comprehensive understanding of the spouse's income to women's labor supply; secondly, the data has good timeliness and robustness.

Taking into account the legal marriage and retirement age, the sample selected in this paper is married women whose husband and wife are both working-age people, so the age of the male is between 22-60 and the age of the female is between 20-55. On this basis, invalid data such as agricultural labor, retired students, school students, incapacity, and unawareness and refusal to answer in the sample data are eliminated. In order to avoid the influence of outliers, this paper censored the 1% extreme values of the selected continuous variables, and finally selected 5115 effective samples, of which 3215 samples participated in non-agricultural labor, accounting for 62.85%.

3.2. Variable Selection and Descriptive Statistics

The explained variable in this article is the labor participation rate of women. In this article, the "current working status" in the questionnaire is defined as "working" as labor participation assigned a value of 1, otherwise it is assigned a value of 0. According to the "work nature" option, the samples engaged in "agricultural work" are excluded, the samples of retired, retired, and incapacitated according to the "reason for not working" option, and the full-time schooling sample according to the "Are you going to school now" option. The core explanatory variable of this article is the husband's commuting time, which is defined by the "one-way commute time" in the questionnaire. With reference to existing research, the control variables in this article are mainly divided into three categories: The first category is individual characteristics, including age, Education level, health status, region and household registration; the second category is spouse characteristics, including income status and education level; the third category is family characteristics, including whether they live with their parents or in-laws, the number of children under 6 years old, family size, and Total household assets. In addition, this article controls the overall environment and impact of the economy and employment by including the fixed effect of province.

Overall, the non-agricultural labor participation of married women in China is about 63%. This result is basically consistent with the existing data. The average age of married women is about 36.79 years old, the average education level is high school, and the average health level is healthy. The average number of children under the age of 6 is 0.4, the average living rate with parents is 48%, and the average number of family members is 4.43. Compared with women who have withdrawn from the labor market, women who participate in non-agricultural labor have the characteristics of older age, higher education, and better health. In terms of spouse

characteristics, women who participate in non-agricultural labor have shorter commuting time, higher education and higher income. In addition, women who participate in non-agricultural labor and those who have withdrawn from the labor market also have significant differences in the number of children under the age of 6, the proportion of living with their parents (in-laws), family size, and family assets.

In the existing research on the labor participation rate of married women, age, education level, family economic status and family structure are important factors that affect the labor supply of married women. Therefore, this article is based on age, education level, family economic status and The number of children under the age of 6 is divided into groups of married women, and their labor participation is counted. The results are shown in Table 2.

Age is the main factor in the labor participation rate, reflecting the life cycle characteristics of married women's participation in labor. Generally speaking, the older they are, the more likely they are not to participate in labor. The labor participation rates of married women aged 20-29, 30-39, and 40 years old and above are 53.5%, 68.28%, and 63.96%, respectively. Among the three age groups, married women aged 20-29 have the lowest labor force participation rate. The reason may be that they are at the peak of childbirth and are therefore more likely to leave the labor market. Since then, the labor force participation rate has declined with age.

Education level is an important factor reflecting human capital. Generally, the higher the education level, the more employment opportunities and income, the greater the probability of labor participation. With the improvement of women's education level, the labor participation rate of married women rose from 49.59% to 85.78%, which shows that human capital can increase the female labor participation rate to a large extent.

In addition, family economic status and family structure are also important factors that affect married women's labor participation. In terms of family economic status, according to the quantile of the income of the spouse, the family economic status of married women is divided into three groups: low-income, middle-income, and high-income. The labor participation rates of married women in the three groups are 54.31%, 64.24% and respectively. 70.35%. As the income of spouses increases, there is a gradual upward trend. This may be because the spouses with higher incomes have relatively higher education levels and are in a more advantageous position in job competition. In terms of family structure, the labor participation rate of married women decreases with the increase in the number of children under 6 years of age. This may be because children under the age of 6 need more care time and higher care requirements, so women are more likely to leave the labor market and stay at home.

3.3. Empirical model

Since female labor participation is a binary variable, this paper uses the Logit model for regression:

$$FLFP_i = \alpha + \beta \text{commutetime}_{s_i} + \gamma Z_i + \varepsilon_i$$

$FLFP_i$ is a dummy variable, representing the labor participation of the i -th married woman, commutetime_{s_i} representing the commuting time of the spouse, Z_i representing control variables, including personal characteristic variables, spouse characteristic variables, family characteristic variables, and location variables. Random error ε_i is the error term.

4. EMPIRICAL ANALYSIS

4.1. Basic Model Estimation Results

First, analyze the impact of spouse's commuting time on female labor participation. The regression results of the Logit model are shown in Table 1. Column (1) in Table 1 is the

regression result after controlling for personal characteristics, spouse characteristics, family characteristics, and location. The coefficient of female labor participation is significantly negative at the 5% statistical level, that is, the female labor participation rate will vary with As the spouse's commute time increases, it decreases.

From the point of view of control variables, the labor participation rate of women increases significantly with age, but there is a significant "inverted U-shaped" relationship between age and the labor participation rate of women. After reaching a certain age, women gradually withdraw from the labor market, and the labor participation rate decline. Human capital is an important variable that affects the labor participation rate of women. The higher the level of education and the better the health, the labor participation rate of women has risen significantly, while the non-agricultural labor participation rate of urban women and rural women has no significant difference. It is consistent with the conclusion of Zhao Ting (2019). At the same time, the number of children under the age of 6 in the family significantly reduced the female labor participation rate. For every additional child, the female labor participation rate dropped by an average of 32.8%. This may be due to the fact that children under the age of 6 have not yet entered elementary school and need more time and more intensive care. Under the influence of the idea of "males are the outside, women are the inside", women are more inclined to temporarily withdraw from the labor market. On the contrary, living with parents (in-laws) can significantly promote women's labor participation rate. A large part of women's withdrawal from the labor market is due to conflicts between family and work. Parents help to share housework and child care can alleviate this conflict. In addition, the female labor force participation rate is positively correlated with the education level of the spouse and negatively correlated with the spouse's income, but these two points are not statistically significant. Finally, the size of the family significantly reduces the female labor participation rate.

4.2. Robustness Test

Table 1. Probit regression of the impact of spouse's commuting time on female labor participation

	(1)		(2)
Spouse commuting time	-0.00270** (-2.68)	Middle commuting time	-0.335*** (-4.04)
		Long commuting time	-0.467** (-2.94)
Age_female	0.353*** (10.99)	Age_female	0.356*** (11.03)
Age_female Square	-0.00447*** (-10.71)	Age_female Square	-0.00450*** (-10.76)
Female_primary school	0.461*** (3.65)	Female_primary school	0.455*** (3.59)
Female_junior high school	0.675*** (5.53)	Female_junior high school	0.669*** (5.46)
Female_high school	1.171*** (8.29)	Female_high school	1.175*** (8.29)
Female_junior college	1.835***	Female_junior college	1.835***

	(10.12)		(10.08)
Female_undergraduate	2.461*** (10.03)	Female_undergraduate	2.475*** (10.07)
general	-0.203** (-2.75)	general	-0.184* (-2.48)
Relatively unhealthy	-0.277* (-2.31)	Relatively unhealthy	-0.275* (-2.29)
town	0.127 (1.73)	town	0.121 (1.65)
Live with parents	0.556*** (5.99)	Live with parents	0.551*** (5.93)
Number of children under 6	-0.328*** (-4.83)	Number of children under 6	-0.332*** (-4.88)
Spouse income	0.000000131 (0.08)	Spouse income	-0.000000112 (-0.07)
Male_primary school	0.222 (1.46)	Male_primary school	0.219 (1.44)
Male_junior high school	0.191 (1.31)	Male_junior high school	0.192 (1.32)
Male_high school	0.196 (1.25)	Male_high school	0.192 (1.22)
Male_junior college	0.302 (1.62)	Male_junior college	0.308 (1.66)
Male_undergraduate	0.0821 (0.38)	Male_undergraduate	0.0849 (0.39)
Male_master's degree	-0.378 (-0.66)	Male_master's degree	-0.370 (-0.65)
Family size	-0.145*** (-5.28)	Family size	-0.145*** (-5.23)
Total family assets	0.000000117 (1.91)	Total family assets	0.000000113 (1.86)
Constant term	-6.112*** (-7.92)	Constant term	-6.144*** (-8.00)
Sample size	5090	Sample size	5090

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

In order to test the estimation results of the basic model, this part divides the spouse's commuting time by continuous variables into short commuting ($T < 45\text{min}$), medium and long commuting ($45\text{min} < T < 90\text{min}$) and long commuting ($T > 90\text{min}$). Group, and then perform Logit model regression, the final estimation results are shown in Table 1 column (2). After defining the spouse's commuting time as a categorical variable into the regression model, the results show that the increase in spouse's commuting time significantly reduces female labor parameters. The estimation results of core variables and control variables are consistent with the basic model, verifying the robustness of the results.

5. CONCLUSION

This paper uses the Chinese Family Panel Studies Data (CFPS) to study the influence of husband's commuting time on wife's labor participation. The main findings show that:

After controlling for individual characteristics, spouse characteristics, family characteristics, and regional characteristics, the increase in spouse's commuting time at the level of 5% significantly reduced the female labor participation rate. After dividing the spouse's commuting time into short commuting, medium and long commuting and long commuting, we re-estimated its impact on female labor participation rate, and the regression results remain unchanged.

Under the multiple backgrounds of China's aging population, the gradual disappearance of the "demographic dividend" and the full liberalization of the "two-child policy", how to maintain a high female labor force participation rate to fully develop labor resources is related to the population structure. The issue of the dynamic mechanism of China's sustainable economic development under changing conditions. In view of the existing research on the labor participation rate of married women, most of them focus on income, elderly care and the number of children. The research in this article provides a new reference for increasing the labor participation rate of women. While the government strengthens women's human capital accumulation skills, strengthens children's education, pension and employment security, it should also fully consider the impact of commuting status on labor participation. This will not only help reduce the spouse's commuting time and improve subjective satisfaction. And work efficiency also helps to increase the female labor participation rate.

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