

The Effect of Child Preschool Education on Labor Force Participation of Married Women of Childbearing Age

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Abstract: *In the context of the decline in working-age population and exhaustion of demographic dividend in China, how to increase the supply of labor has become an issue critical to economic development. Optimizing preschool education system and enhancing the accessibility of high-quality and low-cost pre-primary schooling help free married women from childcare, boost their labor force participation, and thus, augment the supply of labor. This study discovers that the labor force participation rate of women who enroll all their preschool-age children in kindergartens is 1.32 times that of those who do not do so; and that for working women, preschool attendance of all their kids can increase their working time by four hours per week. After classifying the sample according to the level of household income and type of Hukou (registered permanent residence), it finds that child preschool attendance can more significantly raise the employment probability of women from high-income families and more prominently increase working hours of those with rural Hukou.*

Best Evidence in Chinese Education 2023; 13(1):1671-1678.

Doi: 10.15354/bece.23.ar028

How to Cite: *Gao, X., & Min, W. (2023). The effect of child preschool education on labor force participation of married women of childbearing age. Best Evidence in Chinese Education, 13(1):1671-1678.*

Keywords: *Preschool Education, Married Women of Childbearing Age, Labor Force Participation, Working Hours*

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Conflict of Interests: None.

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The Background of the Study

In the wake of the founding of the P. R. of China, the country established an equal employment system for men and women and provided a relatively complete childcare service for preschool children to retain mothers in the workforce (Shi, 1999). Chinese women have maintained a relatively high level of labor force participation compared with their counterparts in other countries. However, the establishment of market-oriented economy as a result of the nation's reform and opening up impaired the preschool childcare system and pre-primary education was no longer provided as public welfare, which posed negative impact on women's employment, especially the employment of those from low-income households, and made them less competitive in the labor market (Zhu & Wang, 2005). Researchers attempted to examine the relation between mothers' devotion to childcare and their lower labor force participation and confirmed that mothers invest far more time and energy in taking care of the family and young kids than fathers, thus more likely to withdraw from the labor market (Xiong & Li, 2017). As a result, married women of childbearing age in China experienced a decline in labor force participation due to the difficulty in balancing work and family; among them, those having children aged between 0 and 6 in homes were most significantly affected, with their employment rate dropping from 90.3% in 1991 to 74.9% in 2011 (Du, Zhang, & Dong, 2018).

To improve female employment, China has made immense efforts to expand preschool education since 2010. By 2020, 48.1826 million children were enrolled in kindergartens; the gross enrollment rate of preschool education reached 85.2%. The scale and coverage of preschool education were close to the average level of OECD countries. The popularization of preschool education has made it accessible to a much larger population, especially to that in the underdeveloped regions in central and western China, and has freed more married women from the burden of childcare, enabling them to return to work after giving birth to a child. According to data from the World Bank, China witnessed a rapid decline in the labor force participation rate of its female population from 2000 to 2010, but the downward curve has levelled out since 2011, which can be attributed to the popularization of preschool education and the liberation of female labor force.

With the loss of China's demographic dividend and decrease in its fertility rate, adult women have become an important source of labor supply. Investigations into the influence of child preschool education on mothers' employment are vital to the increase of the supply of labor in China. Utilizing data from China Family Panel Studies (CFPS) 2010-2018, this article undertakes empirical research on the effect of the popularization of preschool education on promoting labor force participation of married women of childbearing age in China.

Data and Descriptive Statistics

The Data Source

Data used in this study is sourced from the CFPS database, which samples from 25 provincial administrative regions. The wide coverage of the samples assures their representativeness. CFPS are longitudinal surveys using the year of 2010 as the baseline with data of 2018 being the latest; altogether they provide data in 5 periods. This study focused on the labor force participation of married women with children aged between 3 and 5, since the caring modes for kids in 0-2 age group are too diverse to be easily defined. The sample of the study was made up of married women from 21 to 49 years of age with 3-5 years old children. After deleting subjects lacking core variables and administering mean value interpolation to those lacking non-core variables, a sample of 5364 women was obtained.

Descriptive Statistics

Descriptive statistics showed that the women sampled had 1.8 children each on average with a mean age of 30 years old and most of them were in good health according to their self-evaluation; that their labor force participation rate was 62% and those in employment work approximately 33.5 hours each week. Among the subjects having labor incomes, the logarithm of their average income was 9.31. In terms of education level, the average length of schooling of the women sampled was 8.45 years, which is approximately junior secondary level, and only 12% of them received higher education (college or above). That means most of them had not experienced higher education. The impact of education level on employment might be underestimated in this study.

The Relationships between Child Preschool Education and Maternal Labor Force Participation

Child Preschool Education and the Labor Force Participation Rate of Mothers

The Measurement Model

In this study, the dependent variable “being in employment or not” is a binary variable. The logit model was used to evaluate the effects of child preschool education on maternal labor force participation instead of the linear probability model, because the latter may cause heteroscedasticity and produce estimate values of the dependent variable that are out of the interval [0, 1]. Also, the logit model can explain the change in the odds ratio caused by a one-unit increase in the explanatory variable. In addition, the year dummy variable was incorporated in the model to eliminate the gaps induced by year differences, as the sample entailed a group of cross-section data from different periods.

The regression results demonstrated that child preschool education has a significant positive effect on maternal labor force participation. When all children in a family attended nursery schools, the mother’s employment probability is 1.32 times that of her counterpart whose children failed to receive preschool education. Calculation results of

the coefficient of the variable of grandparental care showed that for women from families where elderly members provided childcare, the probability of their labor force participation is 1.57 times that of those who could not get support from the elderly in terms of childcare. Prior work experiences were also an important factor determining whether a woman would rejoin the labor market; for those who have been formally employed for more than 6 months, the probability of resuming work was 3.66 times that of those without this experience. Rural women were more likely to resume labor participation after giving birth to a child than their urban counterparts. Furthermore, older women in better health conditions and from higher-income families are more likely to restart working. It is also worth noting that the analysis results did not show a significant effect of high education levels on women's labor force participation as presumed, which may be due to the low proportion of women who have received higher education in the sample.

Child Preschool Education and Labor Force Participation of Women from Distinct Economic Backgrounds

It was presumed that the effect of child preschool education on maternal employment varied among families of different economic status. In this study, annual household income was used as the criterion to classify and analyze the heterogeneity of the sample. Based on the logarithm of the annual household income, this article divided the sample into three categories: women from low-income, middle-income, and high-income families. The regression results showed that regardless of family income levels, child preschool education had a significant effect on promoting maternal labor participation, and that the higher the household income level, the stronger the promotion effect.

The results of calculation of the correlation coefficients revealed that, the probability of maternal employment in low-income families after children enrolled in nursery schools was 1.34 times that before children attended kindergartens. For middle-income and high-income families, the probability of maternal participation in the labor force after their children received preschool education was 1.44 and 1.49 times that before their children's kindergarten attendance, respectively. With grandparental care for children, the employment probability of mothers in high-income families would increase by 1.09 times, which was significantly higher than that in low- and middle-income families

The Robustness Test

The logarithm of the cost of preschool education in the area where the subject lives was employed as instrumental variable to validate the impact of child preschool education on maternal resumption of work.

Child preschool attendance is negatively correlated with the cost of preschool education. That is to say, the higher the cost of preschool education in a certain area, the weaker the family's demand for it. The less affordable the child preschool education, the more likely it is for the mother to withdraw from labor force. Therefore, the instrumental variable is negatively related to the endogenous variables, which means that in

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the first phase of regression, the coefficient of the instrumental variable should be negative, while in the second phase of regression, the coefficient of the explanatory variable after fitting the instrumental variable should be significantly positive as it is in the initial logit model.

The regression results of the study showed that the coefficient of the instrumental variable was significantly negative in the first phase of regression and that the coefficients of the endogenous explanatory variables are significantly positive in the second phase of regression. The Wald test and AR test on the instrumental variable demonstrated that the instrumental variable was exogenous and valid, and no over-identification occurred in the tests, which satisfied the requirements for the instrumental variable. By introducing the instrumental variable of the cost of preschool education, this study verified that child preschool education could significantly promote the labor force participation of married women.

Child Preschool Education and Maternal Working Hours

The Measurement Model

Child preschool attendance can also pose impact on working hours of women in employment. As working mothers have to balance between childcare and work, they can have more discretionary time and work for longer if their children are taken care of by preschool education institutions. After having screened the sample to identify women who reported effective working hours, this study obtained 2,275 subjects for the ensuing analysis. Women's effective working hours per week are basically normal distribution, and thus OLS regression can be applied. The regression on the full sample demonstrated that women whose preschool-age children were enrolled in kindergartens worked 4 more hours per week than those whose preschool-age children did not attend nursery schools.

The Heterogenous Effects of Child Preschool Education on Women with Different Types of Hukou

According to the regression results, sending children to preschool education institutions could significantly increase the working hours of rural women by 3.4 hours per week. Grandparental care for children had a greater effect on the weekly working hours of rural women than those of their urban counterparts, probably due to the fact that the high charge or poor availability of rural preschool education institutions makes rural women more reliant on the childcare provided by grandparents. In addition, rural women with the labor force type of "being employed" may participate in off-farm work aside with agricultural production, which means that they work longer hours than their urban counterparts in the same job.

The Heterogenous Effects of Child Preschool Education on Women with Different Numbers of Children

The regression results showed that child preschool education had the greatest impact on the working hours of mothers with only one child, increasing their weekly working time by 5.1 hours; and that it also has a positive effect on the working hours of mothers with more than one child, which were raised by 3.1 hours each week. Moreover, the mother with more than one child could increase her working hours only when all her children were enrolled in nursery schools; otherwise, she would strongly depend on the childcare provided by the elderly in the family.

Conclusions

Focusing on the effect of child preschool education on labor force participation of married women of childbearing age in China, this study discovered that the mother can be freed from childcare when preschool service is available to all her preschool-age children, which considerably increase her employment probability. This positive effect is the most prominent among women from high-income households, probably due to their strong willingness and capability of resuming their career. After enrolling their children in preschool education institutions, women employed, especially those from rural areas, can increase their working time, which, as a result, boosts the supply of labor for the whole society. Currently, in most Chinese families, grandparental care for young children remains a vital source of support for mothers' rejoining the labor force.

However, as a result of the dwindling family size and the introduction of delayed retirement policy in China, the burden of childcare will be shifted back to mothers and discourage them from resuming work, thus reducing the total supply of labor force. Hence, the development of preschool education becomes crucial to relieving married women of the burden of childcare, reducing the opportunity cost of their employment, and encouraging their labor force participation. Improved maternal employment can further enhance the efficiency of human resource allocation, promote economic growth and at the same time bolster gender equality in Chinese society.

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The Chinese version of this article has been published in Journal of Peking University Education Review, 20(2):17. The English version has been authorized for being publication in BECE by the author(s) and the Chinese journal.

高雪姮 & 闵维方. (2022) 学前教育对婚育女性劳动参与的影响. 北京大学教育评论, 20(2): 17.

Received: 27 December 2022

Revised: 05 January 2023

Accepted: 12 January 2023