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Unmarried Children and Labor Supply Decisions of Elderly Parents

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Abstract: The common problem of "excessive labor participation" among the elderly in China will affect the quality of life of the elderly and their families, as well as the level of social welfare. Based on the data of China Family Panel Studies (CFPS) of Peking University in 2014, 2016 and 2018, this paper empirically tests whether the presence of unmarried adult children in the family will lead to a significant increase in the probability of elderly parents participating in the labor force. The results show that the presence of unmarried adult children will increase the probability of elderly parents participating in the labor force by 3.7% on average. Heterogeneity analysis shows that children's marriage has a greater impact on parents with low education level, and the impact of unmarried children on the labor supply decision of elderly women is greater than that of elderly men. Therefore, alleviating the marriage pressure of young people will significantly improve the welfare level of the elderly. Making the elderly enter the labor market voluntarily because of good working conditions, satisfying salaries and the realization of their own value.

1. Introduction and Literature Review

According to data released by China's National Bureau of Statistics, the number of people aged 60 and above in China rose from 254 million at the end of 2019 to 264 million at the end of 2020, accounting for 18.1 percent to 18.7 percent. The number of people aged 65 and above also rose from 176 million, or 12.6 percent, to 190 million, or 13.5 percent. As an increasingly large social group, the employment intention of the elderly has an increasing impact on the entire labor market. Before formulating relevant policies, it is necessary to have a comprehensive and profound understanding of the influencing factors of the elderly group's willingness to work. At the same time, with the proportion of the elderly population gradually rising in China, the welfare level of the elderly to a large extent represents or affects the harmony of the family and even the whole society. Therefore, paying attention to the employment intention of the elderly is not only conducive to clarifying the governance mode of the aging society, improving the level of social governance, but also conducive to improving the living standards of the elderly.

In recent years, the proportion of the elderly at the retirement age who continue to participate in the labor market has been increasing, and the employment rate of the elderly at the retirement age is

unexpectedly high, showing the phenomenon of "quitting" (Yu et al., 2016; Cheng, 2014) [1][2]. At the individual level, the factors affecting the employment status of the elderly include gender, age, education level and former occupation (Tian et al., 2014) [3]. The health status of the elderly (Li et al., 2014) [4], the old-age security system (Zhang and Chen, 2014) [5], and the economic status of children also have a significant impact on whether the elderly will be employed again after retirement (Tian, 2014) [3]. Wu Haixia (2015) believed that unmarried children, children with low income or no employment had a relatively high risk of gnawing on the elderly, but the gender, age and education level of the children did not have a significant impact on whether the children were gnawing on the elderly [6].

Yu et al. (2016) believed that the number of children was positively correlated with the probability of re-employment of the elderly [1]. Due to the stronger tradition of inheritance in China, parents often attach great importance to the economic level of their children and regard the housing issue of their children as their own responsibility and obligation (Xiong et al., 2017) [7]. At the same time, the intensified competition in the marriage market, coupled with the continuous appreciation of real estate wealth in recent years, has made real estate more and more important in the marriage market. For example, in rural areas, due to the serious information asymmetry problem in the rural marriage market, in order to prevent adverse selection, the husband's family sends the signal of its "quality" through the number of houses or the amount of housing investment (Fang and Tian, 2016) [8]. Families with sons will save more to increase the probability that their sons will succeed in marrying a wife in the future, while families with daughters will also save more to improve their daughters' voice (Shang-Jin Wei and Xiaobo Zhang, 2011) [9], which leads to a significantly higher saving rate for families with unmarried children (Yu and Lian, 2017) [10]. At the same time, Peng and Zou (2019) argued that the impact of unmarried adult children on the elderly's labor supply decision is more obvious in cities with higher housing prices [11].

In the past, there have been few studies directly exploring the relationship between the intergenerational support of unmarried children and the labor supply decision of the elderly. This paper considers the intergenerational support of unmarried children by elderly parents as a reason for the "endless work" of the elderly. In the fourth part, we empirically test whether the presence of unmarried children in a family leads to a significant increase in the probability of elderly parents participating in the labor force, and then conduct heterogeneity analysis. This paper explores the impact of unmarried children on elderly parents' participation in the labor force under different samples.

2. Data and Descriptive Statistics

2.1. Data Sources

The data used in this paper are from the China Family Panel Studies (CFPS) conducted by Peking University. Respondents aged 50 to 74 years with adult children from 2018, 2016 and 2014 were selected as the research sample. This is because people aged 50 to 74 belong to the young elderly population. Although they are about to enter the middle and old age, they still have relatively strong working ability and employment potential, and their retirement or employment is flexible and variable. At the same time, their children are about to enter or have already entered the marriageable age.

2.2. Variable Selection and Descriptive Statistics

2.2.1. Explained Variable and Concern Variable

The explained variable is *iemploy*, which is a 0-1 variable, with 1 representing current employment. The variable of concern "whether there are unmarried adult children" is represented by *umchild*, and the variable value of 1 means "there are unmarried adult children". *umson* and *umdau* stand for "whether there is an adult unmarried son" and "whether there is an adult unmarried daughter," respectively. Underage marriages are not considered. The legal age of marriage is not used as a dividing line because it takes a long time for families to save for their children to marry. Therefore, the pressure on parents from unmarried children should be felt before the children reach marriage age. When their children become adults, the pressure on parents will become more obvious and the sense of urgency to save will become stronger, so the legal adult age (18) is chosen as the dividing line. In order to avoid the inaccurate selection of the age cutoff, this paper refers to the practice of Peng and Zou (2019), and uses *um22* (whether there are unmarried children over the age of 22), *um26* (whether there are unmarried children over the age of 26) and *umnum* (the number of unmarried children) to conduct robustness tests [11].

2.2.2. Control Variables

Table 1: Descriptive Statistics

Variable names	Variable definition	Number of samples	Mean	Standard deviation	Min	Max
iemploy	1 = Having a job	32866	0.664	0.472	0	1
umchild	1 = Having an unmarried child	32866	0.290	0.454	0	1
umson	1 = Having an unmarried son	32866	0.209	0.407	0	1
umdau	1 = Having an unmarried daughter	32866	0.191	0.393	0	1
age	Age	32866	60.24	6.852	50	74
age2	Age squared / 100	32866	36.75	8.370	25	54.76
gender	1 = Female	32866	0.491	0.500	0	1
hukou	1 = Non-rural household registration	32866	0.282	0.450	0	1
edu1	1 = Primary school	32866	0.217	0.412	0	1
edu2	1 = Junior high school	32866	0.235	0.424	0	1
edu3	1 = High school and above	32866	0.145	0.352	0	1
health1	1 = General	32866	0.189	0.391	0	1
health2	1 = Healthier	32866	0.349	0.477	0	1
health3	1 = Healthy/very healthy	32866	0.205	0.404	0	1
childnum	Number of children	32866	2.178	1.069	1	9
son	1 = Having a son	32866	0.831	0.375	0	1
marry	1 = Married (spouse alive)	32866	0.898	0.303	0	1
lnpgdp	Logarithm of provincial GDP per capita	32866	10.83	0.412	10.18	11.85
year	Year	32866	2016	1.624	2014	2018
urban	1 = Town of residence	32715	0.457	0.498	0	1
um22	1= Having unmarried children aged 22 and older	32866	0.262	0.440	0	1
um26	1= Having unmarried children aged 26 and above	32866	0.182	0.386	0	1
workhours	Average workhours per week	14708	40.56	23.27	0.100	168

Whether the elderly work or not is affected by individual, family and regional culture. Therefore,

this paper introduces control variables at individual, family, time and regional levels. (1) Variables *age* to *health3* are control variables at the individual level. Considering that the impact of age on retirement is not only linear, in the young and middle-aged period, the probability of retirement for the elderly is likely to increase rapidly with the increase of age. Therefore, referring to the practice of Peng and Zou (2019), the square term of age (*age2*) is also used as the control variable of the model [11]. (2) Variables *childnum* to *marry* are control variables at the family level. (3) The control variables at the time and region level include year, provincial dummy variables and the logarithm of provincial GDP per capita. Due to the cultural customs of each region, the level of economic development may also have an impact on local people's labor decisions. The variable *urban* (whether to live in a city or not) is used in the heterogeneity analysis. It relies on the place of residence of the respondents and the urban and rural areas classified by the National Bureau of Statistics to distinguish urban and rural residents. The descriptive statistical results of each variable are shown in Table 1.

3. Benchmark Regression and Robustness Test

In order to test the impact of unmarried children on parents' labor supply decisions, the following linear probability model is established:

$$iemploy_{ijt} = \beta_0 + \beta_1 umchild_{ijt} + \gamma X + \delta P_j + \theta Y_t + u_{ijt} \quad (1)$$

Where $iemploy_{it}$ represents whether individual i has a job, and *umchild* represents whether individual i has adult unmarried children, which are the main variables of interest. X is the control variable at the individual and family level, P_j is the province fixed effect, Y_t is the time fixed effect, and u_{it} is the random disturbance term.

Since the explained variable is a dummy variable, the ordinary least square method is used to conduct stepwise regression on Model (1), and the results are shown in Table 2. Column (1) includes control variables at the individual level, control variables at the household level, control variables at the province level and dummy variables of year. The results show that having unmarried adult children has a significant impact on the work decisions of the elderly, which is significantly positive at the significance level of 1%. Having unmarried children at home increases the probability of working by 3.7% on average. This confirms the idea that elderly parents choose to continue working because they help their children start a family and a career.

If there are endogeneity problems, the model results may not meet the unbiasedness and consistency. Although the problem of "missing variables" has been discussed above, and three types of variables including individual, family and region are controlled, the panel fixed effect model is used for estimation in order to ensure the robustness of the model and eliminate the possible influence of missing variables that do not change with time. The results are shown in Column (2) of Table 2. Column (3) replaces the explanatory variable with "whether there are unmarried children aged 22 or above" (*um22*), column (4) replaces the explanatory variable with "whether there are unmarried children aged 26 or above" (*um26*), and column (5) replaces the explanatory variable with "the number of unmarried children" (*umnum*). The results are relatively robust. Column (6) replaces the explained variable with "working hours per week," and the sample only includes parents who participate in the labor force. The results show that the presence of unmarried children increases the average weekly working hours of parents by 2.25 hours. The results of the five regressions all show that unmarried children significantly increase the willingness of the elderly to participate in the labor force and the working time of their parents. Therefore, the above conclusions are robust to different models and different samples.

Table 2: Benchmark Regression and Robustness Test

	(1)	(2)	(3)	(4)	(5)	(6)
umchild	0.037***	0.035***				2.250***
	(0.005)	(0.009)				(0.429)
um22			0.033***			
			(0.005)			
um26				0.020***		
				(0.006)		
umnum					0.010***	
					(0.003)	
Other control variables	YES	YES	YES	YES	YES	YES
Individual fixed effects		YES				
Year fixed effects	YES	YES	YES	YES	YES	YES
Province fixed effects	YES	YES	YES	YES	YES	YES
Observations	32866	32866	32866	32866	32866	14708
Adjusted R^2	0.284	0.018	0.284	0.283	0.283	0.082

Note: ***, ** and * indicate significance at the level of 1%, 5% and 10%, respectively; Standard errors are shown in parentheses.

4. Heterogeneity Analysis

4.1. Gender of the Elderly

Due to differences in the division of household labor, older men tend to work while women tend to take care of the family. Then the labor supply decisions of older women should be more affected when their children need support. In Table 3, the samples are divided into four categories: urban males, urban females, rural males and rural females, and the regression is conducted by groups. The results show that whether in rural areas or urban areas, the presence of unmarried adult children in the family has a much greater impact on the labor participation of female elderly than that of male elderly. The existence of unmarried children will increase the probability of elderly women to continue to participate in the labor force by 4.3% to 7.2%, which is more than three times that of elderly men. The reason why children's marriage has no significant effect on rural elderly men may be that the elderly in rural areas of China are more engaged in agriculture or migrant work. These jobs have no retirement mechanism, and the rural elderly do not have the concept of retirement, usually in the state of "endless work". Unmarried children may increase their labor intensity and working hours, but have little effect on whether the rural elderly participate in the labor force.

Table 3: Gender Heterogeneity Test of the Elderly

	(1)	(2)	(3)	(4)
	Town men	Town women	Country men	Country women
umchild	0.029**	0.072***	0.011	0.043***
	(0.011)	(0.013)	(0.008)	(0.010)
Other control variables	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Province fixed effects	YES	YES	YES	YES
Observations	7190	7754	8863	8908
Adjusted R^2	0.335	0.242	0.167	0.159

Note: ***, ** and * indicate significance at the level of 1%, 5% and 10%, respectively; Standard errors are shown in parentheses.

4.2. Educational Background of Parents

Table 4 shows the sub-sample regression of people with different education levels. The results show that compared with those with high school education or above, children's marriage has a greater impact on those with junior high school education or below. This means that children's marriage mainly affects parents with relatively low education. For the elderly with higher education, most of them have more stable jobs and higher income levels when they are young, and their families are more likely to have some wealth accumulation. Therefore, they can cope with their children's competition in the marriage market more easily. This conclusion suggests that more attention should be paid to the impact of policies on the middle and lower classes and their demands when making relevant policies.

Table 4: Heterogeneity Test of Parents' Educational Background

	(1)	(2)
	Junior high school and below	High school and above
umchild	0.034***	0.017
	(0.006)	(0.013)
Other control variables	YES	YES
Year fixed effects	YES	YES
Province fixed effects	YES	YES
Observations	28106	4760
Adjusted R^2	0.274	0.361

Note: ***, ** and * indicate significance at the level of 1%, 5% and 10%, respectively; Standard errors are shown in parentheses.

5. Conclusion

This paper is concerned that the "intergenerational support" of Chinese families is very obvious, and the phenomenon of "endless work" is also common among middle-aged and elderly people. This paper further uses CFPS data to empirically test the relationship between unmarried children and the labor supply of elderly parents. The results show that: (1) the existence of unmarried children will significantly increase the probability of elderly parents' labor supply, and the existence of adult unmarried children will increase the probability of elderly parents' continuing to work by 3.7% on average. (2) Heterogeneity analysis shows that the presence of unmarried children will significantly increase the probability of elderly women to participate in the labor market. Children's marriage has a greater impact on parents with low education level. In addition, there is still a lot of room for improvement in the test of the underlying economic mechanism, and we can also expand the research on whether unmarried children increase the labor intensity and labor hours of the elderly.

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