Does Intergenerational Co-residence Promote Female Labor Participation: Evidence based on Eastern Provinces in China

Ke Shen[1], Huashuai Chen[2]

1. Assistant Professor, Institute of Population Research, School of Social Development and Public Policy, Fudan University, China, shenke.ccerpku@yahoo.com.cn

2. Research Associate, Center for the Study of Aging and Human Development, Medical School of Duke University, Durham, North Carolina, huashuai.chen@gmail.com

Abstract: Based on the data of middle-aged women and their elderly parents in Chinese eastern provinces, this article explores whether and how co-residence with parents influences female labor supply, taking into account of the endogeneity for living arrangement. A two-stage instrumental variable estimation shows that women co-residing with elderly parents, especially with mothers, are much more likely to participate in labor market and to increase working hours. A major reason is that co-residence allows women to reduce the burden of household work through the assistance of their parents, thereby freeing up time for market work. Our findings indicate that the decline in intergenerational co-residence partly accounts for the larger decrease in female labor force participation rate since 1990.

Key words: Living arrangement, International co-residence, labor participation

1. Introduction

Multigenerational household has long been commonplace in China. The proportion of elderly aged 65+ co-residing with their offspring amounted to 73.6% and 74.0% in 1982 and 1990 respectively (Zeng and Wang, 2004). In the past few decades, with the declining fertility, accelerating urbanization and changing social customs, intergenerational co-residence has been decreasing. 56.7% and 61.6% of urban and rural old individuals live with their children in 2000, while the percentages dropped to 47.8% and 60.1% in 2006 respectively (Qu and Sun, 2011). More and more children choose to or have to live apart from their elder parents, which has raised great concern on the health and well-being of empty-nested elderly (Chen and Silverstein, 2000; Zhou et al., 2008; Zhang, 2009; Li et al., 2009; Zhang et al., 2010). However, few researchers have explored how the declining intergenerational co-residence influences labor force participation of the daughters.

This question is triggered by a phenomenon in China's labor market. Since 1990, female labor participation has decreased more quickly than that for male (Chen et al., 2003; Yao and Tan, 2005; Du and Dong, 2010). For instance, female labor participation rate in urban areas was as high as 91.4% in 1988, while it decreased to 83.3% in 2002; on comparison, male labor participation rate had only declined by 2.3 points during the same period. The reasons are complicated. Zhang et al. (2002) and Yao and Tan (2005) provided various explanations from the perspectives of labor demand, such as intensified gender discrimination in labor market, and dominance of invisible unemployment after the economic reform. From the perspectives of labor supply, does decreasing intergenerational co-residence make women less likely to share the burden of housework with their parents, thus leading to declining labor force participation? A sound understanding of female living arrangement is therefore crucial.

Base on the data of middle-aged women and their elderly parents in Chinese eastern provinces, this article explores whether and how the intergenerational co-residence influences female labor force participation. In Section 2, we briefly review the relevant literatures. Section 3 discusses the econometric specification. Section 4 presents the data source and variable definitions. In section 5, we discuss the results and their implications. Section 6 concludes.

2. Literature Review

There are both upward and downward intergenerational transfers in extended families. On one hand, the offspring provide informal care and in-kind services for their elderly parents; on the other hand, the elders could assist their children in housekeeping and taking care of grandchildren. If the upward transfer is dominant, female caregivers of an older parent often experience competing demands of care and work. Thus, women may have to sacrifice working hours to provide care for their parents. Pezzin and Schone (1999) applied the endogenous switching model to explore the interconnection between living arrangement, elderly care and female labor participation. It was shown that daughters co-residing with their parents are less likely to participate in paid employment, while the coefficient is insignificant.

On the contrast, if the downward transfer is dominant, the conclusion would be opposite. Based on Japanese national survey data in 1990, Ogawa and Emisch (1996) found that co-residence with parents or parents-in-law has a significantly positive impact on female labor participation. Kolodinsky and Shirey (2000) attained similar findings among American female: those living with their parents are more likely to participate in labor market, but do not work for longer hours. These two studies, however, did not address the endogeneity of living arrangement. Since the decision to live with parents and to take full time jobs might be jointly determined, the previous research may give biased estimates of the effect of co-residence. Using data of 970 Japanese married women aged 24-34, Sasaki (2002) instrumented for living arrangement with the following variables: Her birth order, number of siblings, her husband's birth order, number of her husband's siblings, housing property, housing type, and housing area. Two-stage least square estimation indicated that co-residence with parents or parents-in-law significantly promoted female labor participation. Oishi and Oshio (2006) divided female living arrangement into 3 categories: living with parents, living with parents-in-law, and living apart. The instrumental variable estimation confirmed the positive impact of co-residence with parents on the wife's labor participation, and that the positive impact of co-residence with parents-in-law was even larger. However, several instruments used by Sasaki (2002) and Oishi and Oshio (2006) might not be proper. For instance, housing area and housing property reflect the wealth stock of the family, which

might directly influence women's decision to work.

In sum, there is no consensus on how co-residence with parents influences female labor supply. The variation in results is partly attributed to the huge differences in social customs, gender equality and labor market development in various societies. The difference in econometric specification, such as whether taking into account of the endogeneity of co-residence, also matters. Furthermore, current studies though provide several theoretical mechanisms through which co-residence exerts an effect on female labor supply, they have not testified these mechanisms with empirical analyses.

Inspired by previous studies and decreasing female labor force participation in China, this paper aims to explore whether and how co-residence with parents influences the probability to work and working hours among middle-aged women, using a two-stage instrumental variable procedure.

3. Econometric Specification

There are two indices to measure female labor force participation: one is employment status, the other is hours of work. The former dependent variable is a dummy, and we would employ linear probability models. The latter is a continuous variable with nonnegative values: only if the woman is employed, we can observe positive working hours; otherwise, the length of working is 0. Thus a number of data on hours of work cluster at the value zero. To accommodate this censorship problem, we apply Tobit model expressed by the following equations.

$$Y_i^* = \alpha_0 + \alpha_1 X_i + \sum \beta_k C_{ki} + \sum \gamma_k P_{ki} + u_i, \ u_i \sim N(0, \sigma^2) \qquad (1)$$

$$Y_i = \begin{cases} 0 & \text{if } Y_i^* \leq 0 \\ Y_i^* & \text{if } Y_i^* > 0 \end{cases} \qquad (2)$$

Y_i^* is an unobserved latent variable, indicating preferred working hours of the ith woman. Y_i is equivalent to Y_i^* only if Y_i^* is positive. X_i is the explanatory variable of interest, living arrangement. C_{ki} is a vector of women's characteristics that directly affect labor participation. P_{ki} is a vector of parents' characteristics. u_i is an independently distributed error term assumed to be normal with zero mean and constant variance σ^2.

The above mentioned linear probability model and Tobit model both assume living

arrangement as exogenous, while there is an increased recognition that it should be treated as endogenous (Sasaki, 2002; Oishi and Oshio, 2006). The endogeneity stems from two sources. One source is omitted factors such as filial piety. Those who care more about family connections, are more likely to co-reside with parents, and to spend more time in domestic work and less time in market work. The other is reversal causal link between living arrangement and labor supply. For instance, those who are unemployed might be more inclined to live with their parents to take care of them.

To control for the endogeneity of co-residence, we apply a two-stage instrumental variable estimation approach. The proper instruments for co-residence are variables that influence the decision to reside with one's parents but do not directly affect the decision to participate in the labor force. Two variables are used as instruments: presence of any surviving brothers and birth order for the sampled women. According to Chinese traditional values, the elderly parents are more inclined to live with sons. The presence of brothers would decrease the probability of residing with parents for the female. Meanwhile, the youngest child normally separate from their parents later than his/her older siblings. Hence, these instruments directly affect the co-residential choice but not the labor supply decision.

In the first-stage estimation, the endogenous variable, living arrangement, is treated as a linear function of the instruments and other exogenous variables (Equation 3). If the coefficients δ_1 and δ_2 significantly deviate from 0, it implies the two instruments are highly correlated with the endogenous variable controlling for other covariates. The second stage is an estimation of linear probability model of the probability of work, or an estimation of Tobit model of weekly working hours (Equation 4). The instruments are excluded in the second stage estimation.

$$X_i = \delta_0 + \delta_1 Z_{1i} + \delta_2 Z_{2i} + \sum \pi_k C_{ki} + \sum \theta_k P_{ki} + v_i \qquad (3)$$

$$Y_i = \alpha_0 + \alpha_1 X_i + \sum \beta_k C_{ki} + \sum \gamma_k P_{ki} + u_i \qquad (4)$$

4. Data

(1) Data Source

Our empirical analyses are based on the data from Chinese Longitudinal Healthy

Longevity Survey (CLHLS) and Panel Study of Family Dynamics (PSFD) conducted in 2002.

PSFD interviewed the adult children of the elderly aged 65+ which are the subject of CLHLS in 9 Chinese eastern provinces[1]. The adult children age between 35 and 65. If the old individual has several children, PSFD randomly select one child among them for interview[2]. We merge the PSFD data and CLHLS data according to the ID number of the elderly, to obtain a sample of 4364 adult children and their parents. Among them, there are 1316 middle-aged women and their elderly parents.

Since this paper concerns female labor force participation, 263 women who are disabled, students or retired are excluded from the sample as they are not potential labor force participants. 77 women who live with their parents-in-law while live apart from their own parents are excluded since the surveys do not provide information on their parents-in-law. We further dropped 5 cases with missing information on key variables. The final sample size is 971 cases.

(2) Variable Definition

This paper studies how the choice of living arrangement affects labor market participation decision. Generally, adjustments can occur at the extensive or intensive margin. In the former, work is entirely or not taken up in the first place, which is measured by the employment status. Once any of the three conditions is satisfied, the woman is regarded as being employed in PSFD survey: being engaged in paid work; working more than 15 hours per week without pay in self-owned enterprises; doing farm work. In the latter, hours of work are adjusted such as switching from full time jobs to part time or cutting down overtime working. Weekly working hours is a continuous variable.

The key independent variable, living arrangement, is a dummy variable: co-residing with their parents (denoted as 1), and living apart (denoted as 0). Co-residence is defined as an intergenerational living arrangement in which an adult female, her husband and children (if any), and at least one of her parents share a household, regardless of whether or how they share their income. According to the traditional intra-family labor division, daughters

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[1] 9 Chinese Eastern Provinces include Liaoning, Beijing, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong and Guangxi.
[2] First, confirm the number of children living in the same county as the elderly. If the elderly has two children and his/her birth month is between January and June, then we interview the 1st child; if the elderly has two children and his/her birth month is between July and December, then we interview the 2nd child, and so on.

normally share more burden of housework with their mothers compared with fathers. We adopt another categorization of living arrangement: living with their mothers (denoted as 1), living solely with their fathers or living apart from their parents (denoted as 0). According to the sample selection procedures mentioned above, the sampled women living apart from their parents do not co-reside with their parents-in-law neither, or put differently, they live in nuclear families.

We also refer to another two variables to capture women's housework burden, when exploring the mechanisms through which co-residence influences female labor supply. One is whether your parents assisted you in housekeeping last year. The other is weekly housework hours of the daughters.

We control for the daughters' and their parents' characteristics in the estimation. Daughters' features include age, residence, marital status, education, number of children, and presence of young child aged below 16. Age, marital status, and education measure the household productivity and market productivity of the adult daughter. Number of children and presence of young child indicate the competing demand between child care and work for the female. Elderly parents' characteristics include age, gender, race, activities of daily living (ADL), and cognitive function. Activities of daily living and cognition are two health indicators. On one hand they measure the care-giving burden for the female, on the other hand indicate parents' capabilities of providing housekeeping assistance, which are correlated with women's labor participation decision. Increasing age is also related to decreasing functionality of the elder, measured continuously.

(3) Descriptive statistics

Table 1 reports the summary statistics showing means and standard errors for variables. The overall female labor force participation rate is 74%, their weekly working hours are 32 hours on average. 24% of the sampled women live with their parents, and 14% live with their mothers. On comparison, 54% of the male in PSFD survey co-reside with their parents, indicating that sons still take major responsibilities of supporting parents in contemporary China.

Table 1 Descriptive statistics

	Mean	Standard errors
Dependent variables		
Employed (Unemployed)	0.74	0.44
Weekly hours of work	32.26	23.29
Assist daughters in housework last year by parents (no =0)	0.14	0.34
Weekly hours of housework	21.06	13.29
Key explanatory variables		
Co-residence with parents (live apart=0)	0.24	0.42
Co-residence with mothers (reside solely with fathers or live apart=0)	0.14	0.35
Daughters' characteristics		
Age	48.27	8.43
Urban residence (rural=0)	0.41	0.49
Married (unmarried, divorced or widowed=0)	0.89	0.31
Senior high or above (Junior high or below)	0.20	0.40
Number of children	2.16	1.31
Presence of children aged 16 and below (no=0)	0.20	0.40
Parents' characteristics		
Male (female=0)	0.45	0.50
Age	80.95	10.82
Independent activities of daily living (dependent=0)	0.82	0.39
Normal cognition (impaired=0)	0.75	0.44
Instruments		
Presence of surviving brothers (no=0)	0.76	0.43
Youngest child (no=0)	0.48	0.50
Sample size	971	

Note: Reference groups are in the parentheses.

Figure 1 present the relationship between two instruments and the endogenous variable. With the increase in women's age, the probability of co-residence is typically increased. At each age level, women who have brothers are much less likely to live with their parents; women who are the youngest children in the family have higher probability of co-residence. The pattern is consistent to our expectation.
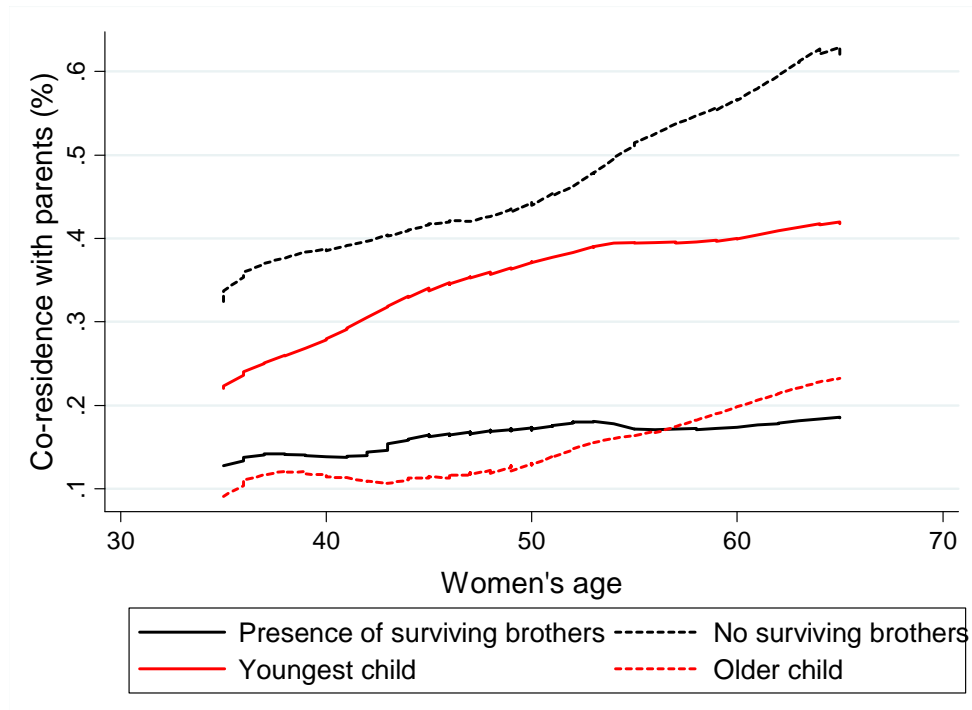
Figure 1 Age pattern of intergenerational co-residence

5. Empirical Results

(1) The impact of co-residence on the probability of working

Column 1 presents the OLS regression results assuming co-residence as exogenous. It's shown that women who reside with their parents are 6 percentage points more likely to work than the counterparts who live in nuclear families. In order to test and adjust for potential endogeneity bias, a two-stage least squares (2SLS) method is applied. The instruments used are the presence of brothers and birth order for the female. Durbin-Wu-Hausman test[3] indicates the presence of endogeneity in the co-residence variable, thus instrumental variable (IV) estimates instead of OLS estimates are consistent. In the first stage estimation, two instruments are significantly correlated with the endogenous variable. The F test for the joint significance of the IVs rejects the null of weak instruments (Staiger and Stock, 1997). Furthermore, the over-identification statistic is insignificant, supporting the validity of two instruments. The signs of the coefficients for two instruments are in line with our expectation.

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[3] The Durbin-Wu-Hausman test is to test for endogeneity in a regression estimated via instrumental variables. The null hypothesis states that both of OLS and IV estimators are consistent, but OLS estimator is efficient. A rejection of the null indicates that instrument variable regression would yield consistent estimates, while OLS regression does not.

Co-residence is more prevalent among the women without surviving brothers. If the woman is the youngest child, she is more likely to reside with her parents. In the second stage, while other coefficients stay remarkably unchanged, the impact of co-residence on labor market participation almost quadruples. Women in extended families are 23.6% more likely to enter the labor market than those in nuclear families. The downward bias of the OLS estimate may be attributed to two facts. First, the unobservables in the labor participation and co-residence equations are negatively correlated. Second, while co-resident promotes labor supply, labor participation exerts a negative impact on the choice of co-residence in turn.

In Column 3, the living arrangement variable takes another categorization: co-reside with mothers, co-reside solely with fathers or live apart. The estimated positive effect of co-residence with mothers on the employment probability is even larger than the effect of co-residence with parents in column 2. It seems that women benefit more from co-residence with mothers compared with fathers.

As expected, the younger and more educated women are more likely to be employed, due to their higher human capital. A larger number of children exert more economic stresses on the family, thus the female have higher incentives to work. Rural women have higher employment rates than the urban counterparts, mainly because farm work is regarded as the market work in the questionnaire. Most of the parents' characteristics have no significant effect on labor participation, while women whose parents are independent in activities of daily living, are more likely to participate in market work.

Table 2 The impact of co-residence on women's labor participation

	OLS	IV		IV	
		1st stage	2nd stage	1st stage	2nd stage
Presence of brothers		-0.25***		-0.160***	
		[0.032]		[0.025]	
Youngest child		0.09***		0.041*	
		[0.029]		[0.023]	
Co-residence with parents	0.060*		0.236**		
	[0.033]		[0.109]		
Co-residence with mothers					0.380**
					[0.182]
Daughters' characteristics					
Age	-0.012***	0.001	-0.012***	0.002	-0.013***
	[0.003]	[0.003]	[0.003]	[0.002]	[0.003]
Urban residence	-0.162***	0.066**	-0.175***	0.060***	-0.18***
	[0.031]	[0.029]	[0.033]	[0.023]	[0.034]
Senior high or above	0.150***	0.002	0.146***	-0.044	0.164***
	[0.038]	[0.036]	[0.039]	[0.028]	[0.040]
Married	0.017	-0.21***	0.057	-0.126***	0.054
	[0.045]	[0.041]	[0.051]	[0.032]	[0.052]
Number of children	0.022*	-0.03***	0.029**	-0.021**	0.029**
	[0.013]	[0.012]	[0.014]	[0.010]	[0.014]
Presence of young children	-0.040	0.020	-0.044	0.025	-0.048
	[0.041]	[0.038]	[0.042]	[0.030]	[0.042]
Parents' characteristics					
Male	0.012	-0.051**	0.021	-0.255***	0.106*
	[0.028]	[0.026]	[0.029]	[0.020]	[0.055]
Age	0.000	0.004**	-0.002	0.002	-0.001
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Independent ADL	0.059	-0.042	0.067*	-0.090***	0.091**
	[0.039]	[0.036]	[0.040]	[0.028]	[0.043]
Normal Cognition	0.055	-0.011	0.059	0.035	0.043
	[0.037]	[0.034]	[0.037]	[0.027]	[0.038]
Joint F statistics		51.0***		29.87***	
P value of over-identification test		0.42		0.35	
Sample Size	971	971	971	971	971

Note: Standard errors in square parentheses. * P<0.1, ** P<0.05, *** P<0.01.

The next step is to explore how co-residence influences the working hours of the female. Assuming the living arrangement as exogenous, Tobit regression results show that co-residence does not impact hours of work for the female (Column 1). Column 2 presents the IV Tobit estimation taking into account of the endogeneity problem. Wald test of exogeneity

in the second last row rejects the null hypothesis of exogeneity, indicating that instrumenting for co-residence is the appropriate decision. The IV estimate of the impact of co-residence is much larger as compared with an estimation in which co-residence is treated as exogenous. Co-residence with parents increases women's working time by about 18 hours per week. This effect can be decomposed into two parts: On one hand, co-residence stimulates more women to enter the labor market; on the other hand, in multi-generational households, employed women also work longer hours. In Column 3, the magnitude of the impact of co-residence with mothers on working hours is even larger. Women co-residing with mothers work 30 hours longer than those living solely with fathers or living apart.

These results support and strengthen the previous findings among Japanese women, which also demonstrate the positive effect of co-residence on female labor supply, taking into account of the joint determination of family structure and labor force participation. (Ogawa and Ermisch, 1996; Sasaki, 2002; Oishi and Oshio, 2006)

Table 3 The impact of co-residence on weekly working hours

	Tobit	IVTobit	IVTobit
Co-residence with parents	3.314	18.196**	
	[2.396]	[7.858]	
Co-residence with mothers			29.752**
			[13.173]
Daughters' characteristics			
Age	-0.717***	-0.745***	-0.801***
	[0.201]	[0.205]	[0.211]
Urban residence	-9.476***	-10.528***	-11.109***
	[2.289]	[2.394]	[2.496]
Senior high school or above	6.383**	6.069**	7.423***
	[2.742]	[2.801]	[2.863]
Married	2.86	6.175*	6.072
	[3.280]	[3.734]	[3.766]
Number of children	0.895	1.482	1.489
	[0.949]	[1.011]	[1.025]
Presence of young children	-2.454	-2.807	-3.179
	[2.920]	[2.984]	[3.034]
Parents' characteristics			
Male	1.451	2.209	8.839**
	[2.006]	[2.081]	[3.932]
Age	-0.026	-0.121	-0.103
	[0.139]	[0.149]	[0.149]
Independent ADL	3.644	4.295	6.184**
	[2.820]	[2.893]	[3.141]
Normal Cognition	5.359**	5.703**	4.432
	[2.663]	[2.721]	[2.771]
Wald Statistic		3.99**	3.73*
Sample Size	**971**	**971**	**971**

Note: Standard errors in square parentheses. * P<0.1, ** P<0.05, *** P<0.01.

(2) Mechanisms through which co-residence influences female labor supply

This section is to explore why co-residence could promote female labor supply. A common hypothesis is that co-residing with parents reduces the burden of household responsibilities for women, making it more likely that they will participate in the labor market (Sasaki, 2002; Oishi and Oshio, 2006). If this hypothesis is supported, women can benefit from intergenerational co-residence. However, if empirical analyses show that women residing with their parents spend more time in housework as well as in market work, the story

might be totally different: women in extended families are faced with intensified economic stress and care burden, thus they have to be more devoted in housework and market work. In this case, women have to cut down their leisure time, and their welfare in extended families is undermined.

As presented in Column 1 of Table 4, the dependent variable is whether the elder parents provided assistance in housekeeping for daughters last year, a dummy variable. Instrumental variable estimation shows that co-residence significantly increases the probability of parents' providing assistance. Column 2 further indicates if women co-reside with their mothers, they are much more likely to receive help from their mothers. In Column 3 and 4, dependent variable turns to be the weekly housework hours for the female. In case of co-residence, women can spend 5.6 less hours in housekeeping than those living apart (Column 3). If they live with their mothers, their weekly housekeeping time is reduced by 9.6 hours (Column 4). These results are consistent with Chinese reality. For instance, based on the survey of support for Chinese elderly in 1992, 59% of the urban elderly and 67% of the rural elderly provide all kinds of help for their children (Jiang, 2001). In this case, we validate the interpretation that co-residence encourages women's employment by reducing demands on their time in the home, thereby freeing up more time for market work.

It's noteworthy that all women do not consider child care as housework in PSFD survey. However, grandchildren care is an important form of assistance provided by the elder grandparents. Thus if the time of grandchildren care is totally added into the housework time, the negative impact of co-residence on women's household burden may be more evident.

Table 4 Impact of co-residence on women's housework burden

Dependent Variable	Whether assist daughters in housework last year		Weekly hours of housework	
	IV	IV	IV	IV
Co-residence with parents	0.228***		-5.599*	
	[0.083]		[3.347]	
Co-residence with mothers		0.386***		-9.595*
		[0.143]		[5.524]
Daughters' characteristics				
Age	-0.001	-0.001	0.199**	0.218**
	[0.002]	[0.002]	[0.087]	[0.089]
Urban residence	-0.014	-0.021	0.856	1.053
	[0.025]	[0.027]	[1.006]	[1.046]
Senior high school or above	0.043	0.060*	-2.834**	-3.264***
	[0.030]	[0.031]	[1.201]	[1.225]
Married	-0.034	-0.033	-0.512	-0.539
	[0.039]	[0.041]	[1.589]	[1.596]
Number of children	-0.014	-0.013	-0.137	-0.154
	[0.011]	[0.011]	[0.425]	[0.430]
Presence of young children	0.041	0.036	1.596	1.721
	[0.032]	[0.034]	[1.279]	[1.299]
Parents' characteristics				
Male	-0.014	0.072*	0.593	-1.548
	[0.022]	[0.043]	[0.891]	[1.664]
Age	-0.004**	-0.004**	-0.018	-0.023
	[0.002]	[0.002]	[0.064]	[0.063]
Independent activities of daily living	0.055*	0.080**	-6.437***	-7.052***
	[0.030]	[0.034]	[1.220]	[1.325]
Normal Cognition	0.011	-0.005	1.256	1.633
	[0.029]	[0.030]	[1.150]	[1.172]
Sample Size	**969**	**969**	**969**	**969**

Note: Standard errors in square parentheses. * P<0.1, ** P<0.05, *** P<0.01.

6. Conclusion

Based on the data of 971 middle-aged women and their elderly parents in Chinese eastern provinces, this paper has explored the causal impact of co-residence on female labor supply taking into account of the joint determination of living arrangement and labor force participation. In order to correct for the potential endogeneity of co-residence, a two-stage instrumental variable procedure is employed.

The main finding is that Chinese women who reside with their parents are more likely to participate in the labor force and to increase hours of work, because women may entrust part of the housework burden to co-residing parents, especially mothers. These findings, on one hand, validate intense intergenerational reciprocity in Chinese extended families. Elder parents provide much assistance in housekeeping and child caring for their daughters. On the other hand, the results indicate that the decline in intergenerational co-residence could partly explain the larger decrease in female labor participation rate compared to male since 1990. In China, women are always faced with competing demands of family and work. In light of the traditional "men outside, women inside" view, husbands normally contribute much less to housework than their wives. There is a chronic shortage of public day-care centers for children and kindergartens. Meanwhile, a majority of families cannot afford to hiring servants or babysitters. Thus, the presence of elder parents in the household is especially helpful. It may well reduce women's burdens of child rearing and housekeeping, allowing them to increase labor supply.

With the vanishing traditional values, declining fertility rate as well as accelerating urbanization, the long-term downward trend in co-residence with parents persists in the future, which would depress female labor supply. Meanwhile, in the case of sub-replacement fertility level, Chinese labor force is expected to be inevitably shrinking. Zeng (2006) projected that Chinese labor force will decrease since around 2025, dropping from 959 million in 2030 to 777 million in 2050. The decreasing female labor participation rate combined with shrinking labor force will result in quicker exhaustion of population dividend for China. Hence, except for eliminating gender discrimination, improving female education and other relevant pro-female policies, promoting intergenerational co-residence is a feasible way to elevate female labor supply. Singapore's practices are good examples. Singaporean Housing Development Board has designed specific flats for intergenerational co-residence; if children choose to purchase houses in the same community as their elderly parents, they are entitled to priority selection and price discounts. These stimulating policies would promote the sustainability of intergenerational co-residence, improve female welfare and equip China for the challenge of labor shortage in the future.

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