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ABSTRACT

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In the U.S., grandparents look after one in five preschool children of employed women. Does this source of informal childcare increase female labor force participation and if so, up to what extent? The main challenge to answer this question is that a positive relationship between grandparents' childcare and female labor force participation might not be causal. We use the maternal grandmother's death as an instrument of grandparents' childcare to measure the effect of grandparents' childcare on maternal labor force participation (MLFP). We compare OLS and IV estimates and find that grandparents' childcare increases MLFP by 15 percentage points on average. We argue that most of the effect is driven by families from socio-economically disadvantaged backgrounds.

JEL Classification: J2, I3

Keywords: maternal labor force participation, grandparents, childcare, NLSY

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1 Introduction

In the last decades, female labor force participation in the U.S. has nearly doubled, a change driven by the entrance of married women with young children to the labor market. The increase in access to subsidized kindergartens and public pre-schools has played a major role in this change, although there exists some controversy about the magnitude of the effect of these policies on maternal labor supply (Fitzpatrick 2010, Cascio 2009, Baker et al. 2008, Gelbach 2002).

The current active debate around childcare however, overlooks the effect of informal childcare on maternal labor force participation (MLFP). To our knowledge, this is the first paper analyzing the effect of grandparents' childcare—the largest source of informal childcare—on MLFP in the U.S.

Very little is known about the effect of grandparents' care on MLFP. In the U.S., grandparents account for 20 percent of all primary childcare arrangements of employed mothers with preschool children[1] and are the second most used source of childcare service after formal care facilities. Grandparents' childcare is flexible, usually 'free', and might be perceived as the best substitute for parents' own time.

The main challenge in identifying a causal effect of grandparents' childcare on MLFP is that childcare choice is not random. While it might be true that grandparents' childcare helps women join the labor force, it might also well be that employed mothers who can afford formal childcare might prefer grandparents than other facilities. Thus, a

[1]Survey of Income Participation Program (2010).

correlation between grandparents' childcare and MLFP might not be casual.

An early attempt to establish a descriptive relationship between MLFP and grandparents' care is Liebowitz et al. (1992). The authors proxy grandparents' childcare with the variable "grandmother living in the household". They find a marginally significant and positive effect on the probability of working for mothers with children under the age of two. More recently, Del Boca et al. (2002, 2004) observe that in Italy, having a grandmother living near the household and in good health increases the probability of being in the labor market of mothers of children under 5. Albuquerque and Passos (2010) use a bivariate Probit model to estimate the probability of MLFP and grandparents' care in Europe. They find that grandparents' childcare increases the probability of working for women with children under 13 by 12.5 percent.

As far as we know there are only a handful of papers that attempt to establish a causal relation between grandparents' childcare and MLFP. Zamarro (2011) uses the Survey of Health, Aging and Retirement in Europe and a SUR (Seemingly Unrelated Regression) Model based on the assumption that the probability of grandmothers taking care of grandchildren is determined by grandmother's past labor market decisions (the excluded variable in the system). She finds that grandparents' childcare positively affects MLFP but only in the Netherlands and Greece. The main caveat of this approach is that identification depends on the validity of the assumption and the structure of the error terms.

An alternative attempt to establish causality of grandparents' childcare on MLFP is Maurer-Fazio et al. (2011). The authors use a two-step procedure and find that in China, women 25 to 50 years old who co-reside with their parents or in-laws are 12

percent more likely to participate in the labor market. However, the external validity of this work is limited because most grandparents in developed countries do not cohabitate with their children, regardless whether they help them with the care of the grandchildren or not.

This paper is the first attempt to measure the effect of grandparents' childcare on MLFP for the United States. We use maternal grandmother's death as an instrument for grandparents' care. We argue that maternal grandmother's death is an exogenous event. We believe that our instrument gives us a credible opportunity to address causality, and discuss the caveats of this approach throughout the paper. We find that having access to grandparents' childcare is associated with a 15 to 18 percent increase in MLFP and that most of the effect is driven by mothers from disadvantaged backgrounds.

We aim to raise awareness of the importance of devoting more efforts to have a more comprehensive understanding of informal childcare services—and in particular by grandparents—and integrate them into the discussion of public childcare to learn about the interactions among care providers. In fact, some countries are already moving ahead and implementing policies encouraging grandparents to take care of their grandchildren. For example, in Europe, the Netherlands introduced in 2007 a payment for grandparents who take care of grandchildren on a regular basis.[2]

Second, because the current generation of grandmothers participated to a lesser extent in the labor market, their opportunity cost is lower and they are more likely to provide childcare aid to their daughters (or in-laws). Current working mothers, however, will have a higher opportunity cost when they become grandmothers themselves. Indeed,

[2] OECD (2011)

grandparents who take care of grandchildren—in particular grandmothers—are less likely to work or work fewer hours, both in Europe (Zamarro, 2011) and in the U.S. (Ho 2008, Rupert and Zanella 2011). This raises the question of who is going to take care of the next generation of grandchildren. If childcare services do not developed within the next generation, the gender employment gap might stop shrinking.

The rest of the paper is organized as follows: Sections 2 and 3 describe the data. Sections 4 and 5 discuss the results, and Section 6 concludes.

2 Data

The National Longitudinal Survey of Youth 1979 (NLSY79) consists of a nationally representative sample of 12,686 men and women between the ages of 14 and 21 who were first interviewed in 1979. The NLSY79 collects rich information on employment, education, background characteristics, and a proxy for ability, the Armed Forces Qualification Test (AFQT).

Since 1986, childcare information is updated in every survey and contains detailed information about the primary, secondary, and tertiary childcare arrangements (besides the mother) for the child's first three years of life. These arrangements can be grandparents (maternal or paternal), other relatives, non-relatives, day-care centers, or other arrangements. We divide the sample into families whose children have a grandparent as their primary childcare provider during any of their first three years of life and their counterparts. We restrict the analysis to women aged 18–49 with children under the age of 13.[3]

[3] Using alternative definitions of grandparents' childcare does not alter the results. We

In addition, we briefly describe grandmother's characteristics using a limited set of questions asked in 1979 about family background including maternal grandmother's offspring, highest grade completed, whether she worked for pay in 1978, and whether she worked more or less than 35 hours a week. We construct the instrument using a set of retrospective questions from 1979 and 2004, including the year the respondent's mother passed away.[4]

Tables 1a and 1b show families' characteristics by type of childcare. We previously argued that childcare choice is likely to be correlated with unobservable family characteristics. As suspected, Table 1a shows that there exist significant differences between families who use grandparents as their primary childcare source and those who do not. While women who rely on their elders are more likely to work, they also come from a lower socioeconomic background. These women are more likely to belong to a minority group, to score 0.11 standard-deviation points less on the AFQT, to lack a college degree, to be single or teenage mothers, and to be poor. Likewise, grandparents who take care of their grandchildren are likely to be less educated and less likely to have hold a library card or received newspapers or magazines at home in the past.

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implicitly assume that children cared for by grandparents in early childhood are more likely to continue to be cared for by grandparents.

[4] Unfortunately, background information was only asked in 1979 and 2004. Therefore we cannot exploit the panel nature of the NLSY because childcare information starts in 1986.

3 Grandmother's Status, Childcare, and MLFP

Given the observed differences between families by type of childcare, we expect differences in unobservable factors, casting doubt on the causal interpretation of the OLS estimates. For example, employed mothers may choose grandparents as childcare providers if they perceive them as the best substitute for their own care. If this was true, OLS estimates would capture a positive but spurious relationship between grandparental care on MLFP. A scenario more consistent with the differences found in the descriptive statistics is one in which women get help from their parents or in-laws because they cannot afford formal childcare. Because women from disadvantaged background are less likely to work (Mulligan and Rubinstein, 2008) and more likely to use grandparental care, we expect that further unaccounted characteristics underestimate the effect of grandparents' childcare on MLFP in our OLS estimates

To predict grandparents' childcare in our IV estimations, we use a dummy variable that takes a value of one if the maternal grandmother passed away. Our instrument solves one set of problems at the expense of creating another: while OLS estimates are subject to bias due to possible unobserved characteristics linked to the choice of childcare and MLFP, IV estimates are biased if the death of the maternal grandmother is correlated with MLFP through channels other than the availability of grandparents' childcare.

To tackle this issue, we take advantage of the fact that a similar IV was previously tested with the same sample to estimate the effects on youth living in single-headed households. Because single-headed households are more disadvantaged than their counterparts, Lang and Zagorsky (2001) use parental death (grandparental in this case) to

instrument living with one parent only. They show that parental death is correlated both with variables such as lower health or education related to poorer adult outcomes as well as with factors linked to better adult outcomes such as having older parents. These results are consistent regardless of the sex of the living parent. Therefore, the direction of the bias for the IV estimates is not obvious. Although these findings are reassuring, we explore further biases related to our instrument because our instrumented and outcome variables are not exactly the same of Lang and Zagorsky (2001).[5]

In our case, having a maternal grandmother alive should have no direct effect on mothers' labor market outcomes. On the one hand, if, maternal grandmothers are alive because they are socio-economically advantaged and have access to high-quality health care, their daughters will tend to be highly educated, marry men with high earnings (Schwartz and Mare, 2005), and be more likely to work and to earn high wages themselves (Mulligan and Rubinstein, 2008). Therefore, IV coefficients might overestimate the effect of grandparents' care on MLFP. On the other hand, women whose mothers are still be alive because they are younger and had their children earlier in life, might belong to a disadvantaged socio-economic background. In this case IV coefficients would underestimate the effect of grandparents' care on MLFP. Consistent with the former scenario, women with living mothers are less likely to have a college degree and

[5] Lang and Zagorsky (2001) examine the correlation between observed family background and parental death for the subsample of individuals with only one parent (here, grandparent). Our results hold when we restrict the sample to single-headed families (See Section 5.1)

less likely to work.[6]

A related concern for us is that grandmothers who passed away are older and therefore they are also likely to have been married to older men. This can negatively affect daughters' labor force participation in two related ways. First, the daughter might stop working to take care of her sick mother or widowed father. If so, IV estimates will overestimate the effect of grandparents' care on MLFP. The NLSY does not provide information as to whether the daughter takes care of her parents or siblings, but in 2006 they ask whether her biological father has any major health problem, which we can use a proxy for the need of care. As we can see in Table 2, grandfathers state that their health is slightly better in families with deceased grandmothers, suggesting this source of bias should not have an important role.

Furthermore, if women stop working to take care of their remaining relatives, their experience and opportunity cost of continuing in the labor force will decrease. In fact, women in families with deceased grandmothers have almost one year of experience more than their counterparts, but probably because they are also almost two years older too.

A further caveat is that grandmothers might have passed away due to hereditary illnesses and passed along these diseases to their daughters. In this case, we should be concerned about our IV estimates being biased upwards. The NLSY provides information on whether daughters had health problems that prevented them from working. As we can

[6] Alternatively, women whose mothers have passed away might have joined the labor force to offset a family income loss. In either case, there is no cause for concern because IV estimates would also underestimate a positive effect of grandparents' care on MLFP.

see in Table 2, there are not any statistically significant differences in health status between women with deceased mothers and their counterparts.[7]

 In addition to satisfying the exogeneity assumption, our instrument should be strongly correlated with our instrumented variable. Table 3 shows first stage regressions of grandparents' care on a dummy equal to one if the maternal grandmother passed away before the child was born (columns (1) and (2)) and reduced-form regressions of grandmother's status on daughters' labor force participation (columns (3) and (4)). We can see in the first two columns that having a living grandmother is a strong predictor of grandparents' care. In particular, it increases the likelihood of having a child being cared by any grandparent by 13%. The F-test is higher than 312 for both specifications (Table 4) and does by far pass the rule of thumb of ten recommended to avoid weak instruments problems (Stock, Wright, and Yogo, 2002).

4 Results

The first two columns of Table 4 depict OLS estimates for specifications with and without regional controls respectively. When grandparents take care of grandchildren, women are 15 percent more likely to participate in the labor force.[8] For the most part, the

[7] If we regress having health issues on age and the instrument, only one percentage point of the difference cannot be explained by age.

[8] This effect is larger than the average for formal childcare. For example, Gelbach (2002) finds an effect of 5% for women with 5-year-old children, and Fitzpatrick (2010) finds small effects of universal childcare. However, we cannot fully compare the estimates

remaining regression coefficients are as expected. Age and its square have a positive and negative sign, respectively, indicating a decrease in the probability of working as women approach retirement age. More educated women are more likely to work, and married women with children are less likely to participate in the labor force.

Because childcare type allocation is not random, we compare OLS with IV estimates. Both models have clustered errors at the regional and year levels. We use an indicator variable of whether the maternal grandmother is alive as an instrument for grandparents' childcare. This choice is based on the fact that the NLSY follows mothers and therefore we have more information on maternal grandparents. Moreover, there is some evidence that maternal grandmothers are more likely to take care of grandchildren than any other grandparent[9], and that parental death (regardless of sex) is correlated both with factors related to worse and better outcome variables (Lang and Zagorsky, 2001). Thus, we expect IV estimates to be less subject to bias than OLS.

The last two columns of Table 4 show the IV estimates. The IV point estimate of the effect of grandparents is 0.3 points larger than OLS. Although not significant, the differences between OLS and IV estimates are consistent with the differences found in the descriptive statistics: socio-economically disadvantaged women are both less likely to

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because our larger effect may be due to the nature of this type of childcare, which can substitute or complement formal care.

[9] Unfortunately, nor the NLSY79 or the SIPP provide information on which grandparent is taking care of the child. However, according to the SHARE (Survey of Health and Retirement in Europe) grandchildren are mostly cared by maternal grandparents, and then by maternal grandparents, followed by paternal grandmothers and paternal grandfathers.

work and more likely to use grandparents as childcare givers. Therefore if there is any relevant omitted socio-economic variable correlated with both childcare choice and MLFP, IV estimates solve this problem, and OLS coefficients underestimate the effect of grandparents' childcare on MLFP.

To further test this hypothesis, we divide the sample by different background characteristics.[10] We should expect IV estimates to be even larger and more statistically different from OLS for disadvantaged groups. As we can see in Table 5, the magnitude of the IV coefficients is significantly larger for black, poor, single or teenage mothers or for those who come from a single-parent family. For example, having any grandparent taking care of a child increases the likelihood of participating in the labor force by almost 60% for black women. Although some of these magnitudes seem quite large, we are comparing the availability of free childcare for women who otherwise might have no other childcare alternative.[11]

Overall, OLS seems to be underestimating the effect of grandparents' childcare on MLFP. Nevertheless, OLS is our preferred estimate of the measure of the effect of grandparents' childcare on MLFP due to its precision.

[10] Implicitly, in this exercise we are assuming that the distribution of preferences for childcare remain constant for the subsamples.

[11] It is important to emphasize that this exercise is a way of analyzing the direction of the multiple biases rather than aiming to measure the heterogeneous effects for subsamples.

5 Robustness Checks

5.1 MLFP in single-headed households

We have argued how parental death is correlated both with factors such as lower health or education related to worse adult outcomes, but also with others like having older parents that tend to produce better later outcomes of individuals living in single-headed households (Lang and Zagorsky 2001). Because our sample includes all types of families, in this section we test whether our main results hold for the subsample of single-headed households as in Lang and Zagorsky.

Table 6 replicates Table 5 for women coming from families with separated, divorced, or widowed parents. In most of the cases, the direction of the bias resulting of moving from the OLS to the IV is the same, and even the magnitudes are comparable. Nevertheless, due to the loss in the number of observations, the estimates for the subsample of separated, divorced and widow parents are less precise, and thus in many cases estimates are not significant.

5.2 Grandmother's Status and MLFP Before Birth

We have already argued that there might be further reasons other than grandparents taking care of children that might make women decide to stop working when their mothers pass away and how that might be biasing our IV estimates.

We now address this main concern with a different approach. If having a deceased grandparent affects MLFP in ways other than the availability of childcare, it should also affect MLFP even when the child is not being born yet. We test this hypothesis in Table 7 by showing a model of FLFP the year previous to give birth. As we can see, we do not

find any evidence that having a maternal mother dead before giving birth has any effect on FLFP. The coefficients of interest are almost zero and not significant.

7 Discussion

Our results support that grandparents' childcare availability is a significant determinant of MLFP.[12] We discuss how OLS estimates can be subject to multiple biases going in opposite directions. After putting all the pieces of the puzzle together, from the descriptive statistics to the regression analyses, we conclude that OLS is likely to underestimate the effect of grandparents' childcare on MLFP. Women from disadvantaged socio-economic backgrounds are both less likely to work (positive selection into the labor market) but also need to rely on grandparents' childcare, being unable to afford paid services. Moreover, we find that the effects of grandparents' care on MLFP are particularly large for disadvantaged women. Given that MLFP has increased in the U.S. in the last fifty years (Goldin 1990, 2006), current employed mothers will have a higher opportunity cost when they become grandmothers and further closure of the gender employment gap might be delayed.

Future research should further contrast our findings, measure the suitability of implementing policies that encourage grandparents to take care of grandchildren, and explore the links between subsidized childcare and grandparents' childcare.

References

Albuquerque, P. and J. Passos. 2010 "Grandparents and Women Participation in the

[12] Some examples are Fitzpatrick 2010, Gelbach 2002, and Lefebvre et al. 2009.

Labor Market." Working Paper No.16/2010/DE/SOCIUS/CEMAPRE, School of Economics and Management, Technical University of Lisbon

Baker, Michael, Jonathan Gruber, and Kevin Milligan. 2008. "Universal Child Care, Maternal Labor Supply and Family well-Being." *Journal of Political Economy*, Vol.116, No.4, pp: 709-745

Cascio, Elizabeth. 2009. "Maternal Labor Supply and the Introduction of Kindergartens into American Public Schools." *Journal of Human Resources*. Vol.44, No.1, pp:140-170

Del Boca, Daniela. 2002. "The effect of child care and part time opportunities on participation and fertility decisions in Italy." *Journal of Population Economics*. Vol.15., pp.549-573

Del Boca, Daniela, Marilena Locatelli and Daniela Vuri. 2004. "Child care Choices by Italian Households." *IZA* WP No. 983

Fitzpatrick, Maria D. 2010 "Preschoolers Enrolled and Mothers at Work: The Effects of Universal Prekindergarten." *Journal of Labor Economics*, 28 (1), 51-85

Gelbach, J. 2002. "Public Schooling for Young Children and Maternal Labor Supply." *American Economic Review* ,92 (1), 307-22

Goldin, Claudia. 1990. Understanding the Gender Wage Gap. Oxford University Press, New York

Goldin, Claudia. 2006 "The Quiet Revolution that Transformed Women's Employment, Education, and Family" *American Economic Review Papers and Proceedings*, 96 (3), 1-21

Ho, Christine. 2008. "Grandchild Care, Intergenerational Resource Allocation and

Retirement: A collective approach" *mimeo*

Leibowitz, Arleen, Jacob Alex Klerman, and Linda J. Waite. 1992. "Employment of New Mothers and Child Care Choice." *Journal of Human Resources*. Vol.27, No.1, Special Issue on Child care Winter 1992, pp:112-133

Maurer-Fazio, M., R. Conelly, L. Chen, and L. Tang. 2011 "Childcare, Eldercare, and Labor Force Participation of Married Women in Urban China, 1982-2000" *Journal of Human Resources*, 46 (2), 261-294

Mulligan, C. and Y. Rubinstein. 2008 "Selection, Investment, and Women's Relative Wages over Time." *Quarterly Journal of Economics*, 123 (3), 1061-1110

Lefebvre P., P. Merrigan, and M. Vestraete. 2009. "Dynamic Labour Supply Effects of Childcare Subsidies: Evidence from a Canadian Natural Experiment on Low-fee Universal Child Care." *Labour Economics*, 16 (5), 590-502

Lang K. and J.L. Zargosky. 2000. "Does Growing Up With a Parent Absent Really Hurt?" *Journal of Human Resources*, 34 (2), 253-273

OECD. 2011. OECD Family Database, OECD, Paris.

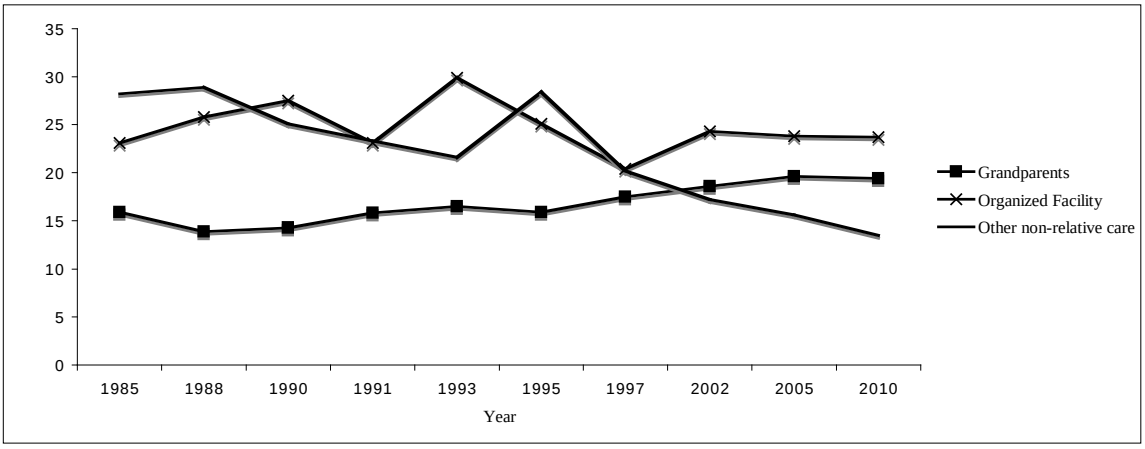
Rupert, Peter and Giulio Zanella. 2011. "Grandparenting and Labor Supply" *mimeo*

Schwartz, Christine, and Robert D. Mare. 2005 "Trends in Educational Assortative Marriage from 1940 to 2003" *Demography*, 42 (4), 621-646

Zamarro, Gema. 2011. "Family Labor Participation and Child Care Decisions. The Role of Grannies" *RAND* Working Paper WR-833

Fig. 1: Primary Childcare Arrangements of Employed Mothers with Children

under 5



Source: Survey of Income and Program Participation 1985-2010

Table 1a: Background Characteristics by Type of Childcare: Mothers

	Grandparents' Childcare	No Grandparents' Childcare
Labor force participation	0.81	0.64
	(0.39)	(0.48)
Employed	0.75	0.59
	(0.43)	(0.49)
Black	0.21	0.16
	(0.41)	(0.37)
AFQT	0.07	0.18
	(0.93)	(0.99)
Less than high school	0.11	0.14
	(0.31)	(0.34)
High school graduate	0.54	0.49
	(0.50)	(0.50)
Some college	0.22	0.19
	(0.42)	(0.39)
College graduate	0.12	0.18
	(0.33)	(0.38)
Age	30.81	31.94
	(5.64)	(5.78)
Married	0.65	0.72
	(0.48)	(0.45)
Never married	0.13	0.10
	(0.33)	(0.30)
Single mother	0.34	0.27
	(0.47)	(0.44)
Teenage mother	0.42	0.37
	(0.49)	(0.48)
Age of youngest child	5.42	5.22
	(3.84)	(3.81)
Number of children in the household	1.78	2.04
	(0.94)	(1.05)
Poor household	0.65	0.53
	(0.48)	(0.50)
Living in a urban area	0.74	0.79
	(0.44)	(0.41)
Observations	6,246	22,628

Notes: Standard errors in parenthesis. Weighted means. AFQT standardized. A household is poor if the spouse (when present) has a wage below the median.

Table 1b: Background Characteristics by Type of Childcare: Grandmothers

	Grandparents' Childcare	No Grandparents' Childcare
Less than high school	0.43	0.36
	(0.49)	(0.48)
High school graduate	0.41	0.43
	(0.49)	(0.49)
Some college	0.07	0.09
	(0.26)	(0.29)
College graduate	0.09	0.12
	(0.28)	(0.33)
Age when giving birth to daughter	56.83	58.15
	(8.62)	(8.76)
Number of siblings in 1979	3.47	3.67
	(2.31)	(2.40)
Year of birth	1935	1934
	(6.78)	(6.67)
Age at giving birth	26.02	26.20
	(6.33)	(6.22)
Labor force participation	0.60	0.61
	(0.49)	(0.49)
Full-time worker	0.45	0.46
	(0.50)	(0.50)
Any HH member received magazines	0.58	0.61
when mother was 14	(0.49)	(0.49)
Any HH member received newspapers	0.75	0.82
when mother was 14	(0.43)	(0.38)
Any HH member had a library card	0.71	0.76
when mother was 14	(0.46)	(0.43)
Both parents lived together	0.75	0.72
	(0.43)	(0.45)
Observations	6,246	22,628

Notes: Standard errors in parenthesis. Weighted means. AFQT standardized.

Table 2: Family Characteristics by Maternal Grandmother's Status

Variable	Maternal Grandmother Alive	Maternal Grandmother Deceased
Maternal grandfather has major health problems	0.52	0.47
	(0.50)	(0.50)
Daughter has health problems that prevent from working	0.11	0.09
	(0.32)	(0.28)
Experience (years since leaving school)	8.98	8.13
	(5.58)	(5.79)
Observations	27,170	1,704

Notes: Standard errors in parenthesis. Means are weighted.

Table 3: First Stage and Reduced Form

Dependent Variable:	Linear First Stage Grandparents' childcare		Linear Reduced Form MLFP	
	(1)	(2)	(3)	(4)
Grandmother dead	-0.134***	-0.136***	-0.024**	-0.025**
	(0.005)	(0.005)	(0.011)	(0.011)
AFQT	-0.002	-0.000	0.047***	0.049***
	(0.004)	(0.004)	(0.004)	(0.004)
Age	-0.010	-0.011	0.041***	0.042***
	(0.008)	(0.008)	(0.010)	(0.010)
Age squared	-0.000	0.000	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Number of children	-0.032***	-0.029***	-0.069***	-0.068***
	(0.003)	(0.003)	(0.004)	(0.003)
Black	0.059***	0.044***	0.083***	0.076***
	(0.006)	(0.007)	(0.010)	(0.010)
Hispanic	0.032***	0.030***	0.026***	0.030***
	(0.004)	(0.006)	(0.010)	(0.010)
High school graduate	0.065***	0.068***	0.100***	0.103***
	(0.008)	(0.008)	(0.009)	(0.009)
Some college	0.080***	0.083***	0.107***	0.109***
	(0.006)	(0.006)	(0.011)	(0.011)
College graduate	0.062***	0.058***	0.058***	0.058***
	(0.010)	(0.010)	(0.019)	(0.019)
Married	-0.024***	-0.029***	-0.022***	-0.024***
	(0.007)	(0.007)	(0.007)	(0.007)
SMSA	-0.051***	-0.048***	0.006	0.013
	(0.012)	(0.012)	(0.009)	(0.009)
Constant	0.483***	0.526***	-0.037	-0.077
	(0.109)	(0.115)	(0.133)	(0.133)
Year dummies	YES	YES	YES	YES
Region dummies	NO	YES	NO	YES
Observations	25,928	25,912	25,928	25,912
Adjusted R-squared	0.033	0.037	0.064	0.065

Notes: Clustered standard errors by region and year in parentheses. Weighted estimates. *** p<0.01, ** p<0.05, * p<0.1. SMSA stands for standard metropolitan statistical area.

Table 4 – Grandparents' Childcare Effect on Maternal Labor Force Participation

Dependent Variable: MLFP	OLS		IV	
	(1)	(2)	(3)	(4)
Grandparents' childcare	0.156***	0.156***	0.181**	0.181**
	(0.008)	(0.008)	(0.084)	(0.082)
AFQT	0.047***	0.049***	0.047***	0.049***
	(0.004)	(0.004)	(0.004)	(0.004)
Age	0.043***	0.044***	0.043***	0.044***
	(0.010)	(0.010)	(0.010)	(0.010)
Age squared	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Number of children	-0.064***	-0.063***	-0.063***	-0.063***
	(0.003)	(0.003)	(0.004)	(0.004)
Black	0.074***	0.069***	0.072***	0.068***
	(0.010)	(0.010)	(0.011)	(0.010)
Hispanic	0.021**	0.026**	0.020**	0.025**
	(0.010)	(0.010)	(0.010)	(0.011)
High school graduate	0.090***	0.092***	0.088***	0.090***
	(0.009)	(0.009)	(0.011)	(0.012)
Some college	0.094***	0.096***	0.092***	0.094***
	(0.011)	(0.011)	(0.013)	(0.013)
College graduate	0.048**	0.049**	0.047**	0.047**
	(0.019)	(0.019)	(0.019)	(0.019)
Married	-0.018**	-0.020***	-0.017**	-0.019**
	(0.007)	(0.007)	(0.007)	(0.007)
SMSA	0.014	0.020*	0.015	0.021*
	(0.010)	(0.010)	(0.011)	(0.011)
Constant	-0.113	-0.159	-0.124	-0.172
	(0.132)	(0.133)	(0.144)	(0.145)
Year dummies	YES	YES	YES	YES
Region dummies	NO	YES	NO	YES
Observations	25912	25912	25912	25912
Adjusted R-squared	0.082	0.083	0.082	0.083
F-Test			733.58	710.32

*Note*s: Clustered standard errors by region and year in parentheses. Weighted estimates. *** p<0.01, ** p<0.05, * p<0.1. Instrument: grandmother dead. SMSA stands for standard metropolitan statistical area.

Table 5. Heterogeneous Effects of Grandparents' Childcare on MLFP

subsample	Dependent Variable: MLFP				Number of observations
	OLS		IV		
	Coefficient	s.d.	Coefficient	s.d.	
Separated Parents	0.096***	(0.009)	0.127	(0.079)	21,816
Blacks	0.133***	(0.011)	0.654***	(0.167)	8,685
Non-Blacks	0.161***	(0.008)	0.022	(0.116)	17,227
Ever Married	0.156***	(0.018)	0.657***	(0.239)	4,705
Single Mothers	0.103***	(0.013)	0.387***	(0.103)	10,062
Married	0.180***	(0.009)	0.038	(0.129)	15,850
Teen mother	0.156***	(0.013)	0.556***	(0.211)	11,996
Adult mother	0.152***	(0.008)	-0.002	(0.092)	13,916
Poor Household	0.119***	(0.009)	0.457***	(0.095)	15,246
Non-Poor Household	0.187***	(0.010)	-0.237	(0.165)	10,666
Poor White household	0.111***	(0.011)	0.242	(0.168)	8,484
Youngest child:					
3 years old or less	0.182***	(0.020)	0.784***	(0.249)	3,184
between 3 and 6	0.150***	(0.027)	0.607*	(0.318)	1,489
between 6 and 13	0.087***	(0.012)	0.259	(0.242)	4,012
Eldest daughter	0.096***	(0.009)	-0.147	(0.229)	21,816
Younger daughter	0.087***	(0.012)	0.723***	(0.193)	4,012

*Note*s: Clustered standard errors by region and year in parentheses. Weighted estimates. *** p<0.01, ** p<0.05, * p<0.1. Instrument: grandmother dead. Errors clustered at the regional and year level. All include regional and year controls.

Table 6. Heterogeneous Effect of Grandparents' Childcare on MLFP for Single-headed Households

Subsample	Dependent Variable: MLFP				Number of observations
	OLS		IV		
	Coefficient	s.d.	Coefficient	s.d.	
Separated Parents	0.145***	(0.012)	0.379**	(0.148)	10,889
Blacks	0.108***	(0.017)	0.836***	(0.317)	4,567
Non-Blacks	0.152***	(0.015)	0.260	(0.183)	6,322
Ever Married	0.149***	(0.025)	0.615	(0.383)	2,526
Single Mothers	0.105***	(0.016)	0.331*	(0.199)	5,005
Married	0.170***	(0.018)	0.382**	(0.176)	5,884
Teen mother	0.156***	(0.016)	0.523	(0.540)	6,534
Adult mother	0.134***	(0.017)	0.219	(0.149)	4,355
Poor Household	0.125***	(0.013)	0.163	(0.149)	7,140
Non-Poor Household	0.170***	(0.021)	0.488*	(0.276)	3,749
Poor White household	0.127***	(0.019)	-0.143	(0.224)	3,474
Youngest child:					
3 years old or less	0.172***	(0.026)	1.450**	(0.676)	1,616
between 3 and 6	0.140***	(0.035)	0.558	(0.629)	781
between 6 and 13	0.042**	(0.020)	0.156	(0.360)	2,170
Eldest daughter	0.079***	(0.023)	-0.147	(0.229)	2,419
Younger daughter	0.169***	(0.014)	0.723***	(0.193)	8,204

Notes: Clustered standard errors by region and year in parentheses. Weighted estimates. *** p<0.01, ** p<0.05, * p<0.1. Instrument: grandmother dead. Errors clustered at the regional and year level. All include regional and year controls.

Table 7: MLFP before childbearing

Dependent Variable:	MLFP	MLFP
	(1)	(2)
Grandmother dead	-0.013	-0.013
	(0.008)	(0.008)
AFQT	0.033***	0.033***
	(0.004)	(0.004)
Age	0.050***	0.050***
	(0.008)	(0.008)
Age squared	-0.001***	-0.001***
	(0.000)	(0.000)
Number of children	-0.105***	-0.105***
	(0.005)	(0.005)
Black	0.027**	0.025**
	(0.012)	(0.012)
Hispanic	-0.002	0.003
	(0.010)	(0.010)
High school graduate	0.084***	0.085***
	(0.007)	(0.007)
Some college	0.055***	0.056***
	(0.008)	(0.008)
College graduate	0.037***	0.038***
	(0.014)	(0.014)
Married	-0.037***	-0.038***
	(0.005)	(0.005)
SMSA	0.019***	0.021***
	(0.007)	(0.007)
Constant	-0.015	-0.018
	(0.113)	(0.111)
Year dummies	YES	YES
Region dummies	NO	YES
Observations	48,610	48,610
Adjusted R-squared	0.081	0.081

*Note*s: Clustered standard errors by region and year in parentheses. Weighted estimates. *** p<0.01, ** p<0.05, * p<0.1. SMSA stands for standard metropolitan statistical area.