Effects of Grandmothers' Proximity on Mothers' Labor Force Participation

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Abstract

This paper investigates the causal effects of the grandmothers' geographical proximity on the labor supply decision of married women with young children by using data from the Turkish Family Structure Survey. We deal with the reverse causality and endogeneity problems arising from mothers' and grandmothers' joint location and labor supply decisions by implementing a two-stage least squares estimation method using the number of alive grandmothers as an instrument. We argue that although grandmothers' proximity can increase mothers' labor supply through their free and flexible child care services, geographically close grandmothers can better impose traditional gender norms prevalent in Turkey, which will decrease mothers' labor supply. The overall effect depends on the relative size of these two opposing factors. Our results suggest that living in the same neighborhood or closer to the grandmothers increases the probability of labor force participation and employment rates of women with young children by 18.2 ppt and 16.4 ppt, respectively. We also show that grandmothers' proximity does not have a significant effect on the labor supply and the employment probability of men with young children and women with no children or older children. Besides, we find that grandfathers' proximity does not affect the labor market outcomes of women with young children. Therefore, we conclude that grandmothers' child care provision drives these results, and the effect of the "traditional gender norm" channel is relatively small.

JEL Classification: J13, J20, J21

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1 Introduction

Female labor force participation has important implications for women and the economies they live in. It improves women's bargaining and decision power within the household (Anderson and Eswaran (2009), Majlesi (2016)). Besides, it is an important driver of growth and development (Verick (2018), Klasen (2019)). Yet, in many countries such as India, Turkey, Saudi Arabia and Mexico, female labor force participation rates stay low.

Several factors such as education level, gender norms, culture, fertility rates, and child care facilities affect female labor force participation decisions (Leibowitz and Klerman (1995), Vuri (2016) and Akyol and Okten (2019)). In this paper, we investigate the effect of grandmothers' geographical proximity on the labor supply decision of married women with young children by using the 2016 Turkish Family Structure Survey. Grandmothers' proximity may affect female labor market participation through two channels. The first channel is the possible help of grandmothers on child care activities. The literature shows that increased child care costs are a massive barrier for women to participate in the labor market (Heckman (1974), Blau and Robins (1988), Klerman and Leibowitz (1990), Connelly (1992), Ribar (1992), Kimmel (1998)). Essentially, the presence of young children in the household increases the reservation wage of women, decreasing their labor supply (Leibowitz and Klerman (1995)).[1] Therefore, the availability of grandparents in a geographically close distance who can provide free and flexible child care can be a factor that can increase female labor force participation by reducing women's reservation wage. On the other hand, grandmothers living at a close distance can better impose traditional gender roles on women with children. Given the prevailing gender norms against women's employment in Turkey[2], grandmothers' close geographical proximity might reduce labor market participation rates of married women with young children. Therefore, the effects of grandmothers' proximity on female labor market participation depend on the size of these two opposing factors.[3]

In Turkey, as of 2019, women's labor force participation is 38.7 percent, below the OECD average of 65 percent (Figure 1). A significant proportion of women who are not in the labor force list housework and child care as the primary reason for not working (see Table A1). Also, according to World Bank (2015), the supply of child care services and their utilization remains low in Turkey, though the availability of child care services increased over the last decade. The main reasons seem to be the high cost and the low quality of child care services. More importantly,

[1] In addition, after the birth of a first child, women may experience a large drop in their earnings (Kleven et al. (2019)).

[2] According to a survey conducted in a representative sample of adults by Konda, Research and Consulting company in 2015, 63 percent of women and 71 percent of men state that they agree or strongly agree with the statement that "The main responsibility of the woman is to raise kids and run a household".

[3] In a similar setting in India, Khanna and Pandey (2020) investigate the role of co-residing mother-in-law on the daughter-in-law's labor market participation.

the most affordable child care services, mostly run by public sectors, offer a half-day service that is not compatible with full-time working mothers' needs. Therefore, understanding the causal relationship between women's decision to work and grandmothers' proximity has important policy implications.

Examining the causal relationship between grandmothers' geographical proximity and mothers' labor force participation decision is empirically challenging as mothers' labor supply decisions and grandmothers' or mothers' residential choices might be made simultaneously. Besides, there can be unobserved factors that affect both the decisions to work and residential preferences. For instance, those who have grown up in more traditional families are more likely to stay closer to their mother or mother-in-law (Autaç (1998), Aykan and Wolf (2000)), and they are less likely to work Atasoy (2017). In this paper, we use the instrumental variable estimation method and the number of alive grandmothers as an instrument for the grandmothers' geographic proximity to deal with the endogeneity and reverse causality problems.

We first show that the number of alive grandmothers is a strong predictor of having at least one grandmother residing at a close distance.[4] Our results from the IV estimates suggest that living in the same neighborhood or closer with the mother or mothers-in-law leads to an 18.2 and 16.4 percentage point (ppt) increase in labor force participation and employment probabilities of married women with young children, respectively. When we define proximity as living in the same town with at least one grandmother, we find a 13.6 ppt and 12.3 ppt increase in the mothers' labor force participation and employment probabilities. Our estimates are slightly decreased, as expected, to 13.2 ppt and 11.9 ppt when we define close geographical proximity as living in the same city. To check whether our results are driven by grandmothers' child care provision, we investigate effects of grandmothers' proximity on women without young children and men with young children whose decisions of work do not depend on any child care transfer (İlkkaracan (2010)). We show that for these groups, the estimates are not significant and relatively small in terms of size. We further show that the proximity of grandfathers who are expected to have less responsibility in child care activities is not a determinant of mothers' labor force participation or employment. Therefore, our results provide evidence that, on average, the contribution of grandmothers living in a close distance as a child care provider exceeds the cost of traditional gender roles imposed by them.

Finally, as an additional supporting evidence, we show that having grandmothers living in close distance decreases women's probability to state household chores and child care as a reason for not working. We also investigate the heterogeneity of our results. We show that the results are driven by less educated women whose reservation wage would be more sensitive to the cost of formal child care. Similarly, the results are much stronger for the women who do not own a house,

[4]Our proximity variable is a dummy variable equal to one if at least one grandmother residing at a close distance, zero otherwise.

which can indicate low-income levels. Besides, the estimated positive effect is more prominent and significant for the women whose childhood region is a city or a district center rather than a village. Women who have grown up in a village are more likely to be exposed to traditional gender norms (Scanzoni and Arnett, 1987) and more likely to have mothers or mothers-in-law who have traditional gender norms. Finally, we check our results' robustness and show that they are not sensitive to different sample specifications.

The organization of the paper is as follows: The next section provides a review of related literature. Section 3 gives the background information and describes the data. Section 4 introduces the conceptual framework. We explain the methodology in Section 5 and report the results in Section 6 and implement several robustness checks to verify our findings in Section 7. Section 8 concludes.

2 Literature Review

There is a growing literature that examines the relationship between grandparents' child care and mothers' labor market decisions. Leibowitz et al. (1992) and Ogawa and Ermisch (1996) were among the first to examine the association between grandparents provided child care and mothers' labor supply under the assumption that living arrangements are exogenous.

Some recent papers established a positive effect of grandparental child care on daughters' labor market outcomes by taking into account the endogeneity issue arising from simultaneous child care and labor supply decisions. Maurer-Fazio et al. (2011) investigate the effect of co-residence with grandparents on women's labor supply decision in China by attempting to take into account the endogeneity of co-residence by using the woman's and her partner's age and province-level dummies.[5] However, as the age level may have a direct impact on their labor market outcomes, this may bias their results.

Using cross-country data from Europe, Dimova and Wolff (2011) provide evidence of a positive effect of grandchild care on mothers' labor supply. To deal with the endogeneity of grandparental childcare, they include a set of family effects that accounts for unobserved heterogeneity at the household level and use grandparent's main characteristics (age, marital status, number of children, health status, education, wage and nonlabor income) as a proxy for intergenerational transfers. As grandparents' age and health status tend to have a direct effect on their daughters' labor supply, the exclusion restriction might not be satisfied biasing their results.

[5]There exist other studies related to Asia and documented the importance of nearby residence, treating it as endogenous. While Shen et al. (2016) use sibling characteristics, Sasaki (2002) uses housing information as an additional instrument for living arrangements. Du et al. (2019) use health status of grandparents as an indicator for grandparent-provided child care.

Aassve et al. (2012) estimate the mothers' labor force decision using the presence of the wife's mother and the number of siblings the woman has as an indicator for the potential family support in seven European countries. Their findings suggest that only in particular countries, employment is positively associated with receiving child care support from grandparents.[6] Posadas and Vidal-Fernández (2013) use maternal grandmother's death as an instrument for the availability of grandparents' child care and fixed effects estimates to control for possible family heterogeneity using data from the USA. They found that informal child care provided by grandparents significantly increases mothers' labor force participation. Similar to Aassve et al. (2012), although their variable of interest is child care arrangement that maternal or paternal grandparents provide, they use maternal grandmother's death as an instrument that may bias their results. Two more recent studies aim to establish the causal relationship between co-residing grandmothers and labor market participation. Talamas (2020) uses the death of a cohabiting grandmother as a negative shock to child care availability and shows the reduction in LFP. He implements double difference to compare the labor supply of women with young children to those having older children with less child care needs before and after the death of the grandmother. A similar identification strategy is implemented by Khanna and Pandey (2020) to investigate the coresiding mother-in-laws' effect on labor market outcomes in India. In the Indian context, as in the Turkish context, the results are less obvious as coresiding mother-in-law may restrict mothers' labor supply through imposing traditional gender-norms, or may increase it through their contribution to household chores and childcare. Khanna and Pandey (2020) shows that after a coresiding mother-in-law's death, mothers' labor force participation decreases.[7]

Arpino et al. (2014) investigate the effect of grandparental childcare on mothers' labor supply in Italy using the information on whether paternal and maternal grandparents are alive as an instrument as we do in this paper. Bratti et al. (2018) use retirement eligibility as a proxy for potential availability of each grandmother(in-law) and grandfather(in-law). They address the endogeneity of current retirement status by using estimated years of contribution based on grandparents' basic characteristics (age, gender, education, and employment sector and type) and exploit the variation in retirement rules introduced by pension reforms.[8] These papers demonstrate that having

[6] As highlighted by the authors, the data set they use does not allow to know whether the mother receives regular help with child care from her parents or in-laws, but they only use information on the mother's availability. This may generate a positive or negative bias depending on the correlation between child care help received from own parents or in-laws, and the number of siblings may not satisfy exclusion restriction if it affects the women's labor supply through family type or unobserved preferences of grandparents.

[7] Our reduced form results presented in Table A2 where we investigate the effect number of alive grandmothers on mothers' labor force participation rate are consistent with the literature looking at the direct effect of grandmothers' death on the labor supply of women (Talamas (2020) and Khanna and Pandey (2020))

[8] A similar identification strategy is applied by Aparicio-Fenoll and Vidal-Fernandez (2015) and Zamarro (2020). Del Boca (2002) considers the impact of grandparents' presence on their daughters' fertility and employment probability in the Italian context. They found similar results.

grandparents helping with child care encourages mothers to join the labor market.

The most closely related paper to our work is Compton and Pollak (2014), which focuses on grandparents' geographical proximity rather than regular child care. Using the National Survey of Families and Households and U.S. Census data, Compton and Pollak (2014) show that close geographical distance to mothers or mothers-in-law has a positive impact on the labor supply of married women with young children and the proximity works through the mechanism of child care. To deal with the endogeneity of grandparents' geographical proximity, they consider a sample of military wives as their husbands' locations are determined exogenously by the military. As the U.S. census data does not cover a question regarding the geographical distance of the respondent to her mother; they use the information whether mother lives in her birth state as a proxy for distance to grandmother.

Different from Compton and Pollak (2014), we observe the information on the geographical proximity more precisely, and solve the endogeneity problem for the whole sample rather than just for a subsample. We also provide further insight into the subject using different measures of proximity definition. As clearly explained by Compton and Pollak (2014), different from the regular grandparental childcare, focusing on the effect of proximity will include the insurance aspect of childcare to meet irregular or unanticipated needs. This aspect of proximity can be very important in the Turkish setting as there is a lack of childcare facilities that would satisfy the working mothers' needs. On the other hand, having a grandmother(-in-law) in a geographically close distance may negatively affect mothers' labor supply decisions as prevalent gender norms in Turkey are hostile to women's labor market participation. Therefore, the direction of the effects of grandmothers' proximity on the labor force participation rate of women with young children is less than obvious. Our paper contributes to this literature by showing that even in a country with strong gender norms against women's labor market participation, the proximity of grandmothers who can provide free and flexible childcare would increase labor force participation rates of women with young children substantially.

3 Background and Data

Female labor force participation in Turkey is around 35 percent well below the OECD average in the last 20 years (see Figure 1). There is a vast literature argues that the most important determinant of female labor force participation in Turkey is education (Tansel (2002), Başlevent and Onaran (2003), Dayıoğlu and Kırdar (2010)). In addition, social norms and cultural factors play an important role in the formation of female labor force participation (Uraz et al. (2010), Akyol and Okten (2019)). Some attempt to identify this fact by focusing on religiosity/conservatism (Göksel (2013), Guner and Uysal (2014) and Atasoy (2017)), others argue that women's social role as caregivers and responsibility of housework, which is the dominant view in Turkey, relates to low Female labor force participation (LFP) (İlkkaracan (2012), O'Neil and Bilgin (2013), Gedikli (2014), Dildar (2015)).

In this paper, we use the 2016 Turkish Family Structure Survey (TFSS), which is conducted by the Turkish Statistical Institute and the Ministry of Family and Social Policies. TFSS is collected to understand the changes in the family structure and lifestyles in Turkey. The survey is conducted between 1 June-26 September 2016 among 35,475 individuals in 17,239 households. It is representative at NUT-1 level and three major provinces (İstanbul, İzmir, Ankara). The survey consists of Individual and Household questionnaires. Individual questionnaires cover all individuals over 15-years-old living in a household and contain information on demographics, family structure, labor market outcomes, and a unique identifier that helps us match with their partners, if available. It also consists of questions about the proximity of residence of the mother and the mother-in-law. More specifically, it includes the questions: "What is the proximity of residence of your mother?" and "What is the proximity of residence of your mother-in-law?". The possible answers are: nonexistent, dead, same house, same building, same neighborhood/district/village, same city and same town, same city but a different town, different city, abroad. We use these variables to decide whether grandmothers are alive and whether they live close by. Household Questionnaires collect data on all individuals in a household, including children under 15 years old and, contain information about household resources.

According to the 2016 TFSS, seventy-five percent of the women state that they are not working because they do household chores or child-rearing (see Table A1). Especially, the unskilled group of women that constitutes a large share of women in Turkey drop the labor market due to low market and high reservation wages (Dayıoğlu and Kırdar (2010)). Another important determinant of the LFP is a young child's presence that discourages women from entering the labor market partially due to the absence of available and/or affordable formal child care. Therefore, the majority of women have to take care of their children, or they turn to free child care provided by relatives.

According to a recent report by World Bank (2015), there is a lack of affordable and quality

child care service providers that satisfy the needs of full-time workings parents in Turkey. One major problem is the availability of services for kids under five-years-old. The existing services, mostly in public schools, available when the child turns five. Although services for younger ages are available by private providers, it is usually more expensive relative to public-sector alternatives. Besides, hours of operation make these services incompatible with full-time working mothers' needs since they require parents to pick up their child before the late afternoon. Another problem is as there is a lack of child care centers close to home, drop-off/pick-up time can be exhausting, or working mothers may fail to respond unanticipated needs of their child if there is a problem in the care center. Therefore, even if they can afford formal child care services, these facilities usually do not meet mothers' needs.

In this paper, we investigate the role of both maternal and paternal grandmothers' geographical distance on the mother's labor market outcome. We restrict our sample to married mothers aged 18-50 who live in a cohabiting union with at least one child ten years old or younger.[9][10] We exclude single mothers as our data do not include information on husbands unless they live in the same household. After dropping observations with missing values, the sample consists of 3,542 observations, a relatively homogenous group of women.[11]

We construct three different variable for geographical proximity of grandparents. Each variable is equal to one if at *least one* of the mother or mother-in-law lives (i) *in the same neighborhood/village/district or closer*, (ii) *in the same city, same town or closer*, or (iii) *in the same city or closer* and zero otherwise.[12] We name the first proximity measure as "District ", the second one as "Town ", and the last one as "City ". Note that proximity variable "District" denotes the shortest distance, "Town" denotes medium distance and "City" denotes the longest distance. Table 1 reports the summary statistics of households' background characteristics by the proximity of the grandmothers' residence for each proximity definition. According to Table 1, mothers who live in a geographically close distance to their mothers or mother-in-laws are more likely to have a primary education degree but less likely to complete tertiary education. We observe a similar pattern for partners' education. Besides, women who live close to at least one of the mother or mother-in-law have a weaker labor force attachment, tend to have younger children and they are less likely to have older children. These statistics highlights the fact that there is selection into these groups, i.e., residential location choice depends on observed and unobserved characteristics of mothers. Therefore, we address the endogeneity problem in our empirical strategy using the IV estimation method by employing the number of alive grandmothers as an instrument for proximity.

In Table A3, we present descriptive statistics by the number of available grandparents, our

[9]Our results are robust to using 40 or 45 as an age cut-off for mothers.

[10]We show that our results are robust to using different age threshold for children in section 7.

[11]The proportion of single mothers is only 6% in the nationally representative sample survey (TFSS, 2016).

[12]In the questionnaire; town refers to a type of territory that is larger than neighborhood, village or district.

instrument. In addition to the differences in educational outcomes and the number of children, we see a substantial difference in mothers' average age across groups. In our estimation, we address this problem by controlling age-fixed effects.

In the next section, we propose a simple conceptual framework that explains how grandmothers' proximity can affect mothers' labor market outcomes.

4 Conceptual Framework

In this section, we discuss the potential channels through which the grandmothers' proximity can affect the labor supply decision of married women with children. The first possible channel is free or lower cost informal care services provided by grandmothers. Considering a neoclassical labor supply model, the availability of free caregiver would decrease mothers' reservation wage, increasing their labor force participation and employment rate (Cardia and Ng (2003), Belan et al. (2010) and Dimova and Wolff (2011)). Besides, considering that as proximity gets closer the probability of receiving help with child care from grandmothers increases, we expect to see that the effects of the proximity of grandmothers on mothers' labor supply get bigger as the geographical distance to mothers gets closer (Garcia-Moran and Kuehn (2017)).

On the other hand, geographically close grandmothers can impose traditional gender norms prevalent in the population, which will decrease mothers' labor supply (Debnath (2015) and Khanna and Pandey (2020)). Similarly, grandmothers' effects by imposing restrictive gender norms get more prominent as mothers' geographical distance gets closer.

Considering these two channels through which grandmothers' proximity can affect mothers' labor supply, mothers will enter the labor market only if their marginal benefit of the help received in child care exceeds the disutility of gender norms imposed by their mother(in-law). Therefore, the direction of the total impact depends on the distance and the cost of social norms imposed by grandmothers. Subsidizing grandparent's time may raise labor supply (Cardia and Ng (2003)). However, if there are strong gender norms against women's employment, such a policy may backfire. Therefore, it requires an empirical investigation to understand the direction of the effect.

5 The Empirical Methodology

We estimate the impact of grandmothers' proximity on mothers' labor force participation and employment decisions using an instrumental variables approach as the residential choice is endogenous. Grandmothers' choice of residence and mothers' labor supply decisions might affect each other. The mother or mother-in-law of a woman who is already working may move close by to share the burden of housework and child care which would create a positive bias in a simple linear

probability model. On the other hand, family structure and labor force participation are related to each other. In more traditional families, the probability that women participate in the labor market is lower, and they prefer to stay close to their mothers or mothers-in-law, which will generate a negative bias. Therefore, the overall direction of the bias is ambiguous.

We examine the impact of grandmothers' proximity by using the following model:

$$L_i = \psi + \alpha P_i + X_i{}'\beta + \varepsilon_i \tag{1}$$

where L_i is the labor market outcome of the individual i. We define two labor market outcome: (1) labor force participation (LFP), a variable taking the value of one if the mother is employed or looking for a job and zero otherwise and (2) employment is equal to one if she worked at least an hour during the reference period and zero otherwise. To focus on paid and formal employment in the form of a regular employee, casual employee, employer, or self-employed, we define LFP and employment measures equal to 0 if she works as an unpaid worker.[13] [14]

P_i is a binary variable that takes 1 if individual i's mother and/or in-law live close as defined in the previous section. X_i is a vector of individual and household characteristics used as control variables in the model, including age fixed effects, education categories for both spouses, whether spouse works, the current region, type of the childhood settlement, the childhood region where the individual lived longest until the age of 15, whether self or spouse has a chronic illness, presence of preschoolers in the household, presence of an older child and number of children aged 10 years old or below. The coefficient α captures the effect of the grandmother's proximity on the mother's labor market outcome and ε_i represents the error term.

Older women tend to have deceased parents and have a weak labor force attachment due to severe health diseases. If the women's age is not controlled properly, our instrument would be correlated with the error term. Therefore, we include women's age fixed effects as controls in our estimation. Education is defined as four dummy variables representing primary education, secondary education, tertiary education, and baseline category corresponds to primary school or less. The husband's income and employment status tend to be correlated with the labor supply decision of married women through assortative mating or income effect. Rising income of the spouse might generate an income effect and motivates household members to withdraw from the labor market; therefore, we include the husband's educational attainment level as a proxy for his income (Maurer-Fazio et al., 2011). By using a set of dummy variables for mothers' region of childhood (NUTS-2 level) and type of childhood settlement, we aim to capture differences in

[13]The results of the analysis are unchanged if unpaid family workers are included in the paid labor force and employment. These results are presented in Table A4.

[14]We also exclude individuals continuing to their education, retired or disabled in our analysis.

family structure and attitudes towards women's working across regions. Similarly, in order to control for the differences in labor market opportunities and availability of child care providers, dummy variables for the region of residence (NUTS-1 level) are included in the analysis.[15]

There is also a possibility that grandmother(in-law) lives close to provide care to her daughter(son) having health problems. To take this channel into account, we use a dummy variable indicating whether the mother or her spouse has chronic illnesses. Finally, we include an indicator variable for the presence of a child aged 15 and above in the household who might share the burden of child care duties and two additional variables measuring child care cost e.g., the number of children 10 years old or below and whether the youngest one is under 6.

In our analysis, we use the number of grandmothers alive as an instrument for grandparents' proximity. To account for any dependence at the region level, we cluster standard errors at the region of childhood residence (NUTS2, 26 Regions) by age level.

6 Results

We estimate the equation 1 separately for each definition of proximity variable, "District", "Town", and "City", and present the results in Table 2. In columns (1) and (3), we present ordinary least square estimation results where the outcome variables are labor force participation and employment, respectively. These results show that when proximity is defined as "City", the longest distance definition, there is a positive and marginally significant association between proximity and the labor force participation rate and employment of married women with young children, the size is around 2-3 ppt. However, the size of the association gets smaller and insignificant as the proximity variable indicates a shorter distance.

As we mentioned earlier, OLS results are biased due to endogeneity and reverse causality problems; therefore, these estimates do not provide any causal relationship. In order to get the causal effect of grandmothers' geographical proximity on the mother's labor market outcome, we use the number of alive grandmothers, 0, 1, or 2, as an instrument for their geographical proximity. In Table A5, we present the first-stage results. As Table A5 shows, the number of alive grandmothers is a strong predictor of grandparent's proximity for each of its definition. F-statistics are far larger than the acceptable threshold of ten (Staiger and Stock (1994)) which assures that our instrument is sufficiently strongly correlated with the endogenous variable, grandmothers' geographical proximity.

We present the IV results in the second and fourth columns of Table 2.[16] These results sug-

[15]The information on the region of residence is only available at the NUTS-1 level.

[16]In Table A6 and A7, we present the coefficient of other control variables for labor force participation and employment, respectively.

gest that grandmothers' proximity has a positive and significant causal impact on mothers' labor market outcomes. It increases the labor force participation and employment rate of mothers with young children by 18.2 ppt and 16.4 ppt if the mother or in-law reside in the same neighborhood/district/village or closer. The effect gets smaller as the proximity to grandparents gets farther. According to those results, OLS estimates seem to underestimate the impact of grandmothers' geographical proximity on women's labor force participation and employment, which is consistent with the findings in the literature. As the traditional family structure where women are less likely to work but prefer staying close to their mothers or in-laws is the most dominant family type in Turkey, the direction of the bias in OLS estimates is expected.

Our estimation of the grandparental child care availability is similar in magnitude to those found in the literature that account the endogeneity problem of living arrangement. In the Italian context, where weak labor force attachment reflected in the low participation rate, Arpino et al. (2014) find that grandparental childcare increases women's labor force participation by 32.3 ppt. Similarly, Bratti et al. (2018) reports a 10.7 ppt increase in the labor force if the mother is alive and available for child care.

We also present the reduced-form effect of grandmothers availability on labor force participation and employment probabilities of women with young children in Table A2. These estimates imply that women whose mother or in-law is alive are around 3 ppt are more likely to participate in the labor market and be employed. The effect increases to 6 ppt if both of the grandmothers are alive. These results are slightly lower than the findings of Talamas (2020) and Khanna and Pandey (2020) that focus on co-residing mother and grandmothers. Here, as our focus is on geographically close mother and grandmothers, a smaller effect is expected.[17]

We show that the proximity of grandmothers has a positive causal effect on mothers' labor market outcomes. Now, we would like to test whether the main driver of our results is grandmothers' child care provision. Therefore, we first restrict our sample to married mothers with children older than ten-years-old and married women without any children. If the grandmothers' proximity affects mothers' labor market outcomes through their child care provision, the effect in this sample should be small or non-existent as the women's labor market participation decision in this sample does not depend on the availability childcare. In the first two columns of Table 3 and Table 4, we present OLS and IV results where we use the number of grandmothers alive as an instrument for the grandmothers' proximity. Although the coefficients are positive when the proximity of grandparents is instrumented, they are insignificant and much smaller relative to what we get in Table 2.

We, then, test the validity of child care motivation by repeating the same analysis with the sam-

[17]We can not analyze the sample of co-residing mother and grandmothers as they constitute only 10% of our sample.

ple of fathers with children 10 years old or younger. Men are less likely to be involved in household or child care activities in societies where patriarchal structure dominates as in Turkey. Thus, we expect that grandmothers' proximity would have either no effect or a smaller effect on fathers' labor force participation and employment probability. The results are presented in the third and fourth columns of Table 3 and Table 4 for labor force participation and employment, respectively. Our IV results confirm that grandmothers' geographical proximity does not affect either fathers' labor supply or employment decisions. Besides, we perform a reduced-form estimation for each of these samples, i.e., we estimate the direct effect of the number of grandmothers alive on the labor market outcomes of women without young children and fathers with young children. We present the results in Table A8. These results show that the direct impact of the number of alive grandmothers on the labor market outcome is negligible and statistically insignificant for these samples.

Grandfathers are less engaged in child care activities than grandmothers (Hank and Buber (2009)); therefore, we expect very little or no impact associated with grandfathers' proximity to the labor market outcomes of mothers with young children. In the fifth and sixth columns of Table 3 and Table 4, we focus on our main sample, mothers with young children, but use grandfathers' proximity as endogenous variable and the number of alive grandfathers as an instrument. Our results indicate that grandfather's child care transfer does not significantly affect daughter's labor market outcomes.[18] For this sample, we also perform reduced-form estimation to examine the direct impact of the number of alive grandfathers on the labor market outcomes of mothers with young children. The last two columns of Table A8 present these results, showing that the number of alive grandfathers has literally no effect, the coefficients are around 0.009, on the labor market outcome of this sample.

Finally, we define an additional outcome variable that is equal to 1 if a woman reports housework and child care as the primary reason for not working and takes the value zero for those who are in the labor force, seasonal worker or report that the reason of not working is other than child care and household chores. Almost 85% of married women with young children in the FSS data set state that they are out of the labor market because they engage in housework activities. Therefore, we conduct the same analysis using this new variable to see if women's reason for not working changes with the proximity of grandmothers for each group of women *with* and *without* young children in Table 5. These results show that for the sample of women with young children, the proximity of grandmothers decreases their probability to state child care as a reason of not working. The coefficients are negative for the women without children, but they are much smaller

[18]In our sample, 29% of grandfathers live in the same district, 56% of grandfathers live in the same town, 69% of grandfathers live in the same city as their daughters(in-laws). The correlation between the grandmothers' and grandfathers' proximity is 75%*(p<.001)* for the shortest proximity definition, 71%*(p<.001)* and 68%*(p<.001)* for the medium and longest proximity definitions.

and not statistically significant. These falsification checks support our hypothesis that child care availability links grandmothers' geographical proximity and mothers' decision of labor supply.

6.1 Heterogeneity of Results

Establishing the causal relationship between grandmothers' geographical proximity and mothers' labor market outcomes, we would like to investigate the heterogeneity of our results. We, first, divide our sample into two categories by the presence and age of the youngest child in the household: mothers with a child aged 0 to 5, i.e., preschool-aged kid, and a school-age child aged 6 to 10.

One may expect to find that child care impact declines in the age of the child, on the other hand, gender norm cost associated with the working of mothers with children aged 0-5 might be higher as prevalent gender norms support the view that women's primary responsibility is child care and household chores. In other words, working while having a kid who needs extensive childcare is less accepted culturally. Reflecting these views, in 2015, the Minister of Health at the time has been quoted to say "Mothers should not put any career other than motherhood at the center of their career "(Akyol and Okten (2019)).

The results presented in Table 6 show that the effect of grandmothers' availability on labor supply and employment status of mothers with children aged 0-5 is smaller in size relative to mothers with younger children. This might be because this age group needs less intensive childcare, which increases the likelihood of getting grandmothers' help. In addition, as we described earlier in this section, for the mothers of children aged 6-10[19] ,it might be more acceptable to work culturally.

Next, we investigate the impact of grandmothers' proximity according to the educational attainment of mothers. We divide our sample into two groups, those who have at most secondary education degrees and those who have at least a college degree. The effect of grandmothers' proximity on labor force participation is pronounced only for the first category of women.[20] If grandmothers' proximity affects mothers' labor market outcomes only through their childcare transfer, these results would be expected since free childcare would make a higher percentage increase in the reservation wage for the sample of mothers with the low level of education[21]. These results suggest that, on average, the cost of "traditional gender norm"is small relative to the benefit of support from grandmothers on childcare.

Next, we divide our sample according to the type of region they grew in. We expect to find

[19]In the sample of mothers with children aged 0-5, the p-values of the test for significance of the proximity variable is 0.10 in the fourth column. In the sample of mothers with children aged 6-10, it is 0.11 when proximity is defined as the same city or closer, 0.12 for other proximity measures in the second column.

[20]Estimates of the proximity variable when it is defined as living in the same district or closer are not reported for the group of mothers who have at least college degrees as F-statistics are small.

[21]In Turkey, women with lower education deprived of ungenerous working conditions (Uraz et al. (2010))

that those women who grew up in a village might differ from those who grew up in a city center or district center in terms of background characteristics such as their mother's working status or culture they are exposed to during their childhood. Table 7 shows that proximity to mothers or mothers-in-law has a positive and significant impact on the labor force participation rate and employment of married women with young children who have grown up in a city or district center. However, the effect is considerably smaller and insignificant for those who have grown in a village. A possible explanation behind these results might be that those women who raised in rural areas were exposed to more traditional gender norms that might be a barrier to enter the labor market as a paid worker.

Finally, we conclude by reporting the estimated effect of grandparents' geographical residence for two different groups divided in terms of the ownership status of the houses in which families are living. The first group is the "owner "status of the house, and the second group consists of tenants living in lodging or not the owner but also not paying rent. We see that the effect of proximity is smaller in magnitude and not significant for mothers residing in their own house, unlike the second category of women who are probably in a lower income group or feel less constrained about switching their residences and prefer to stay close to their mother or in-laws.

7 Robustness Checks

In this section, we present additional analysis to check the robustness of our results. First, we change the definition of proximity variable to the number of grandmothers in close distance, while the instrumental variable is the same as the baseline regression, the number of grandmothers alive. The estimated coefficient and Wald F-statistics are reported in Table 8. The results show that having either grandmother a short distance away increases the mother's labor force participation and employment probability by 4-12 ppt., almost half of our baseline estimates. In the second analysis, we keep the proximity variable as in the baseline model, i.e., equal to 1 if at least one grandmother lives close, but we consider two different instruments for the proximity variable. We define two different instruments by using the information on whether maternal and paternal grandmothers are alive. The results of this specification are also consistent with our main results. Having multiple instruments for a single endogenous variable requires to perform an over-identification test. The joint null hypothesis that the instruments are valid and that the excluded instruments are correctly excluded from the estimated equation is not rejected by Hansen J statistics. In the final analysis, we define proximity as the number of grandmothers in close distance and specify two instruments indicating whether maternal and paternal grandmothers are alive. That is, proximity is defined as in Analysis 1, and the instruments are defined as in Analysis 2. The estimated effects from this specification remain similar to those obtained in the previous analysis, showing that our results are

robust to different specifications. Additionally, we cluster standard errors at the current province and age level as an alternative specification of the model and present results in Table A9 which are very similar to our baseline results.

As further robustness checks, we changed our estimation sample by focusing on mothers with children aged 0-9 [22] and 0-11 to show that our results are robust to age cut-off. As Table 9 shows the effect of proximity is still positive and significant across different cut-off age levels.

One may argue that the reason why mothers are staying out of the labor market might be their poor health conditions. In that case, they may prefer to stay close to grandmothers to share the burden of housework or childcare activities, leading to a downward bias in our IV estimates. Therefore, we restrict our sample to mothers without chronic illness. As expected, the coefficients increase slightly relative to the baseline results, and they are all significant.

A possible concern about the validity of the exclusion restriction is the possibility that mothers might quit working to provide their parents elderly care. Unfortunately, we do not have information regarding the grandmother's health status unless they co-reside with the respondent. To alleviate this problem, we drop mothers living with an elderly individual in need of care and those whose mother (in-law) is deceased and living with the father or in-law from our sample. As the Table 9 shows, the results are very similar to baseline results. Additionally, the parameter of interest is most pronounced for the first category of women whose mother or in-law lives in the same neighborhood and the effect gets smaller as the proximity to grandparents gets farther.

Another possible concern highlighted by Arpino et al. (2014) and Bratti et al. (2018) is that woman might quit the labor force if the death of a grandmother produces a wealth shock through inheritance. As a consequence, the results might be biased if grandmothers' deaths affect the labor force through other channels. We address this problem by excluding women who have any personal dwelling, summer house, field, land, car, or other estates that might be a source of any unearned income from our sample.[23] The estimated effects of grandmothers remain similar to ones observed in the main analysis. In addition to the income effect generated by grandmothers' deaths, a severe emotional shock associated with the death of her mother might push the woman to quit working. If the deceased mother(in-law) or father(in-law) affects them through this channel, we would expect to find evidence of a decline in labor force attachment of married women independent of whether they have young children or not. Similarly, fathers should quit the labor market if they suffer emotional distress upon the death of their mother(in-law) (Khanna and Pandey (2020)). As already highlighted in the previous section, we do not observe any impact of the proximity of grandparents on the group of women without young children or men with young children when it is proxied by

[22] For the outcome variable of employment, the p-value of the test for significance of each proximity variable is 0.11.

[23] Unfortunately, the data set does not provide information on whether the household accumulated any wealth in the form of inheritance.

the grandparent being alive (Table 3 and Table4). One might also argue that results could be driven by women coresiding with elderly parents. Autaç (1998) and Aykan and Wolf (2000) show that coresidence in Turkey mostly reflects the traditional pattern or care for elderly parents. Women living in the same house with their mother or mother-in-law constitute 10% of our sample and our results are robust to dropping coresiding mothers from our sample.

A final and important concern is women living close to grandmothers might affect women's fertility behavior resulting in selection into our main analysis sample, which will bias our results. We check whether our results suffer from sample selection bias, we focus on the all married women sample and estimate the effects of proximity on having a young child. The results presented in Table A10 show that the grandmothers' proximity does not significantly affect having a young child. Therefore, we can conclude that our results do not suffer from sample selection bias.

8 Conclusion

Female labor force participation is an essential driver of women's well-being and well-being of the economy they live in, yet, in many countries, it continues to stay at low levels. There are several factors such as access to child care, education level, cultural and gender norms that can affect women's labor supply decision. Especially for women with young children, access to child care is a crucial factor that influences their decision to work. However, in many countries, including Turkey, availability, and access to child care services is limited. Therefore, in this paper, we investigate the effects of geographical proximity to grandmothers on the labor supply decision of women with young children using the Turkish Family Structure Survey data set. Unlike the regular child care, being close to grandmothers can provide free and flexible child care, which can also be considered as an insurance mechanism. However, at the same time, grandmothers living at a close distance can impose traditional gender norms prevalent in the population. Therefore, the direction of the effect is ambiguous.

We use an instrumental variable approach to control for the potential endogeneity that arises if the labor force participation decision of the women determines grandmothers' choice of residence or vice versa, and if the unobserved family characteristics affect women's decision to work.

We find that living in the same neighborhood or closer to mother or mother-in-law increases women's labor force participation and employment rate by 18.2 and 16.4 ppt, respectively. We also show that when we extend proximity measure to same town or closer and same city or closer, the effects are reduced to 13.6 and 13.2 ppt for the labor force participation, and reduced to 13.2 ppt and 11.9 ppt for the employment outcomes. We also show for women with no children or only older children, and fathers with young children whose primary responsibility does not include child care activities, the proximity of grandmothers do not have any significant effect on their labor market

outcomes. Besides, we find that grandfathers' proximity does not affect labor market outcomes of women with young children. Therefore, we conclude that grandmothers' proximity affects the labor market outcome of mothers with children through their child care provision.

Our results suggest that government policies that promote affordable, quality, and accessible childcare services provided either by formal or informal institutions have the potential to increase labor force participation of women who are at risk of withdrawal from the labor market.

Table 1: Descriptive Statistics by Grandmothers' Geographical Proximity

	District		**Town**		**City**	
	Distant	Close	Distant	Close	Distant	Close
Labor force participation	0.272	0.208	0.264	0.241	0.265	0.244
	(0.445)	(0.406)	(0.441)	(0.428)	(0.442)	(0.43)
Employment	0.259	0.198	0.254	0.227	0.252	0.232
	(0.438)	(0.398)	(0.436)	(0.419)	(0.435)	(0.422)
Age	34.084	32.714	34.64	33.028	34.743	33.261
	(6.305)	(6.25)	(6.478)	(6.162)	(6.628)	(6.192)
Primary school or less	0.424	0.542	0.43	0.487	0.426	0.479
	(0.494)	(0.498)	(0.495)	(0.5)	(0.495)	(0.5)
Primary education	0.169	0.198	0.164	0.187	0.161	0.185
	(0.375)	(0.398)	(0.371)	(0.39)	(0.368)	(0.388)
Secondary education	0.192	0.162	0.183	0.18	0.169	0.185
	(0.394)	(0.369)	(0.387)	(0.384)	(0.375)	(0.388)
Tertiary education	0.215	0.098	0.223	0.146	0.245	0.152
	(0.411)	(0.298)	(0.416)	(0.353)	(0.43)	(0.359)
Primary school or less (Husband)	0.309	0.425	0.311	0.372	0.313	0.362
	(0.462)	(0.494)	(0.463)	(0.483)	(0.464)	(0.481)
Primary education (Husband)	0.138	0.207	0.122	0.185	0.113	0.177
	(0.345)	(0.405)	(0.327)	(0.388)	(0.317)	(0.382)
Secondary education (Husband)	0.243	0.237	0.211	0.256	0.185	0.256
	(0.429)	(0.425)	(0.408)	(0.437)	(0.389)	(0.437)
Tertiary education (Husband)	0.311	0.132	0.356	0.187	0.389	0.205
	(0.463)	(0.338)	(0.479)	(0.39)	(0.488)	(0.404)
Childhood Region: Center	0.392	0.313	0.342	0.374	0.347	0.367
	(0.488)	(0.464)	(0.474)	(0.484)	(0.476)	(0.482)
Childhood Region: District	0.317	0.265	0.318	0.287	0.313	0.293
	(0.465)	(0.441)	(0.466)	(0.453)	(0.464)	(0.455)
Childhood Region: Village	0.275	0.406	0.321	0.324	0.317	0.325
	(0.447)	(0.491)	(0.467)	(0.468)	(0.466)	(0.468)
At least 1 child aged 0-5 in the household	0.653	0.674	0.628	0.678	0.61	0.675
	(0.476)	(0.469)	(0.484)	(0.467)	(0.488)	(0.468)
At least 1 child aged 15 and above in the household	0.216	0.211	0.244	0.198	0.256	0.202
	(0.411)	(0.408)	(0.43)	(0.399)	(0.437)	(0.402)
Number of young children in the household	1.526	1.652	1.516	1.601	1.487	1.595
	(0.695)	(0.794)	(0.693)	(0.754)	(0.683)	(0.747)
Only one grandmother alive	0.22	0.15	0.245	0.168	0.246	0.18
	(0.414)	(0.357)	(0.43)	(0.374)	(0.431)	(0.384)
Both grandmothers alive	0.74	0.85	0.68	0.832	0.636	0.82
	(0.439)	(0.357)	(0.467)	(0.374)	(0.481)	(0.384)
Observations	2,296	1,321	1,247	2,370	789	2,828

Source:Family Structure Survey Micro Data Set 2016. The standard deviations are presented in parentheses.

Table 2: Effects of grandmothers' proximity on mother's labor market outcomes

	Dependent Variables			
	MLFP		**Employment**	
	(OLS)	(IV)	(OLS)	(IV)
Same neighborhood/district/village or closer				
Proximity	0.001	0.182**	0.004	0.164**
	(0.013)	(0.080)	(0.013)	(0.079)
F statistic:		96.38		96.38
Same town or closer				
Proximity	0.026**	0.136**	0.020	0.123**
	(0.013)	(0.060)	(0.013)	(0.060)
F statistic:		185.8		185.8
Same city or closer				
Proximity	0.030*	0.132**	0.030*	0.119**
	(0.015)	(0.059)	(0.016)	(0.058)
F statistic:		264.9		264.9
Observations			3,542	

Notes:*** p<0.01, ** p<0.05, * p<0.1. Standard errors clustered by the NUTS2 childhood region-age level are given in the parentheses. Mean of MLFP and Employment is 0.25 (0.433) and 0.237 (0.426). Regressions include age fixed effects, education categories for both spouses (less than primary education (omitted), primary, secondary and tertiary education), whether her spouse works, the current region of residence (NUTS-1 level), type of childhood settlement (province center (omitted), district center and sub-district or village), the childhood region (NUTS-2 level), whether self or spouse has a chronic illness, whether there is at least 1 child aged 0-5, whether there is an older sibling, number of young children in the household. The Proximity variable is a dummy variable equal to one if the mother or in-law lives close; otherwise, it is 0. In columns 2, 4 and 6, the number of alive grandmothers used as an instrument. The sample includes all married mothers, aged 18-50 inclusive, with at least one child aged 0-10.

Table 3: Effects of grandparents' proximity on labor force participation of women without young children, fathers and mothers with young children

	Labor Force Participation					
	Women without young children		**Father with young children**		**Mother with young children**	
	OLS	IV	OLS	IV	OLS	IV
Same neighborhood/district/village or closer						
Grandmother lives close	-0.010	0.075	-0.014***	-0.001		
	(0.019)	(0.059)	(0.005)	(0.029)		
F statistic:		220.6		109.2		
Same town or closer						
Grandmother lives close	-0.000	0.054	-0.012***	-0.001		
	(0.017)	(0.042)	(0.004)	(0.024)		
F statistic:		433		167.7		
Same city or closer						
Grandmother lives close	0.042**	0.050	-0.010***	-0.001		
	(0.019)	(0.039)	(0.004)	(0.024)		
F statistic:		670.9		228.2		
Same neighborhood/district/village or closer						
Grandfather lives close					-0.014	0.047
					(0.015)	(0.054)
F statistic:						250.6
Same town or closer						
Grandfather lives close					0.005	0.030
					(0.013)	(0.034)
F statistic:						595
Same city or closer						
Grandfather lives close					0.004	0.028
					(0.014)	(0.032)
F statistic:						817.3
Observations	2,509	2,509	3,408	3,408	3,542	3,542

Notes:*p<0.1 **p<0.05 ***p<0.01. Standard errors clustered by the NUTS2 childhood region-age level are given in the parentheses. The dependent variables are women's labor force participation, fathers' labor force participation, and mothers' labor force participation, respectively. The mean value of the dependent variable is 0.322 (0.467), 0.984 (0.124) and 0.25 (0.433) for the group of married women without young children, fathers with young children and mothers with young children, respectively. Control variables are the same as the baseline estimation. For the first four columns, the instrumented variable: Mother or in-law lives close; the instrumental variable: Number of grandmothers alive. For the fifth and sixth columns, the instrumented variable: Father or in-law lives close; the instrumental variable: Number of grandfathers alive. The results of the sample of married women with children aged 11 and older or no children are presented in columns one and two. The results of the sample of fathers with children aged 10 and younger are presented in the third and fourth columns. The last two columns consider married women with young children.

Table 4: Effects of grandmothers' proximity on the employment status of women without young children, fathers and mothers with young children

	Employment					
	Women without young children		**Father with young children**		**Mother with young children**	
	OLS	IV	OLS	IV	OLS	IV
Same neighborhood/district/village or closer						
Grandmother lives close	-0.009	0.065	-0.022***	0.025		
	(0.019)	(0.058)	(0.009)	(0.053)		
F statistic:		220.6		109.2		
Same town or closer						
Grandmother lives close	0.000	0.046	-0.025***	0.021		
	(0.017)	(0.041)	(0.008)	(0.044)		
F statistic:		433		167.7		
Same city or closer						
Grandmother lives close	0.038**	0.043	-0.019**	0.021		
	(0.019)	(0.038)	(0.009)	(0.045)		
F statistic:		670.9		228.2		
Same neighborhood/district/village or closer						
Grandfather lives close					-0.012	0.048
					(0.014)	(0.054)
F statistic:						250.6
Same town or closer						
Grandfather lives close					-0.000	0.030
					(0.013)	(0.034)
F statistic:						595
Same city or closer						
Grandfather lives close					0.002	0.029
					(0.014)	(0.032)
F statistic:						817.3
Observations	2,509	2,509	3,408	3,408	3,542	3,542

Notes:*p<0.1 **p<0.05 ***p<0.01. Standard errors clustered by the NUTS2 childhood region-age level are given in the parentheses. The dependent variables are women's employment, fathers' employment, and mothers' employment, respectively. The mean value of the dependent variable is 0.297 (0.457), 0.937 (0.243) and 0.237 (0.426) for the group of women without young children, fathers with young children and mothers with young children, respectively. Control variables are the same as the baseline estimation. For the first four columns, the instrumented variable: Mother or in-law lives close; the instrumental variable: Number of grandmothers alive. For the fifth and sixth columns, the instrumented variable: Father or in-law lives close; the instrumental variable: Number of grandfathers alive. The results of the sample of married women with children aged 11 and older or no children are presented in columns one and two. The results of the sample of fathers with children aged 10 and younger are presented in the third and fourth columns. The last two columns consider married women with young children.

Table 5: Effects of grandmothers' proximity on stating childcare and household chores as a reason for not working

	Not Working as she is busy with child care and household chores			
	Mothers with young children		**Women without young children**	
	(OLS)	(IV)	(OLS)	(IV)
Same neighborhood/district/village or closer				
Proximity	-0.045***	-0.204**	-0.089***	-0.071
	(0.015)	(0.086)	(0.021)	(0.069)
F statistic:		96.38		220.6
Same town or closer				
Proximity	-0.072***	-0.153**	-0.051***	-0.050
	(0.014)	(0.064)	(0.019)	(0.049)
F statistic:		185.8		433
Same city or closer				
Proximity	-0.068***	-0.148**	-0.071***	-0.047
	(0.017)	(0.063)	(0.022)	(0.046)
F statistic:		264.9		670.9
Observations	3,542		2,509	

Notes:*** p<0.01, ** p<0.05, * p<0.1. Standard errors clustered by the NUTS2 childhood region-age level are given in the parentheses. The mean of "Not Working" is 0.684 (0.465) and 0.564 (0.496) for the group of mothers with young children and women without young children, respectively. Regressions include age fixed effects, education categories for both spouses (less than primary education (omitted), primary, secondary and tertiary education), whether spouse works, the current region of residence (NUTS-1 level), type of childhood settlement (province center (omitted), district center and sub-district or village), the childhood region (NUTS-2 level), whether self or spouse has a chronic illness. The Proximity variable is a dummy variable equal to one if the mother or in-law lives close; otherwise, it is 0. In columns 2 and 4, the number of alive grandmothers used as an instrument. The sample includes all married mothers aged 18-50 inclusive, with at least one child aged 0-10.

Table 6: Effects of grandmothers' proximity on the labor market outcome of mothers

	Dependent Variables			
	MLFP		Employment	
	(OLS)	(IV)	(OLS)	(IV)
Age of children:				
Child 0-5				
Same neighborhood/district/village or closer	-0.017	0.153*	-0.012	0.144
	(0.016)	(0.088)	(0.015)	(0.088)
F statistic		57.34		57.34
Same town or closer	0.018	0.121*	0.012	0.114*
	(0.016)	(0.069)	(0.016)	(0.069)
F statistic		101.9		101.9
Same city or closer	0.003	0.138*	0.002	0.130
	(0.020)	(0.080)	(0.021)	(0.079)
F statistic		108.7		108.7
Mean dependent variable	0.221		0.209	
	(0.415)		(0.407)	
Observations	2,354			
Child 6-10				
Same neighborhood/district/village or closer	0.048*	0.228	0.046*	0.187
	(0.027)	(0.147)	(0.027)	(0.143)
F statistic		35.92		35.92
Same town or closer	0.048*	0.156	0.043*	0.128
	(0.025)	(0.099)	(0.024)	(0.096)
F statistic		79.47		79.47
Same city or closer	0.078***	0.130	0.079***	0.106
	(0.025)	(0.082)	(0.025)	(0.079)
F statistic		146.4		146.4
Mean dependent variable	0.307		0.292	
	(0.461)		(0.455)	
Observations	1,197			

Notes:*p<0.1 **p<0.05 ***p<0.01. Standard errors clustered by the NUTS2 childhood region-age level are given in the parentheses. Dependent variables are mothers' labor force participation in the first two and employment status in the other columns. Control variables are the same as the baseline estimation.

Table 7: Heterogeneous effects of grandmothers' proximity on mother's labor force participation and employment status

	Dependent Variables					
	MLFP			Employment		
	District	Town	City	District	Town	City
Educational Level						
Secondary School or Less	0.207***	0.162***	0.158***	0.181**	0.142**	0.138**
	(0.075)	(0.059)	(0.057)	(0.073)	(0.057)	(0.056)
F statistic	97.64	187.0	281.1	97.64	187.0	281.1
Mean dependent variable	0.165			0.154		
	(0.371)			(0.361)		
Observations	2,936					
Two-years colleges and above		-0.101	-0.091		-0.078	-0.070
		(0.216)	(0.193)		(0.228)	(0.204)
F statistic	1.7	14.98	21.26	1.7	14.98	21.26
Mean dependent variable	0.662			0.642		
	(0.474)			(0.48)		
Observations	606					
Childhood Region Type						
City or District Center	0.228**	0.159**	0.162**	0.178	0.124	0.127
	(0.112)	(0.078)	(0.081)	(0.113)	(0.079)	(0.081)
F statistic	47.63	100.9	128.8	47.63	100.9	128.8
Mean dependent variable	0.289			0.276		
	(0.453)			(0.447)		
Observations	2,380					
Village	0.110	0.083	0.083	0.134	0.101	0.101
	(0.111)	(0.084)	(0.083)	(0.108)	(0.081)	(0.080)
F statistic	44.66	92.67	135.8	44.66	92.67	135.8
Mean dependent variable	0.17			0.158		
	(0.375)			(0.365)		
Observations	1,162					
Ownership status of the house						
Owner	0.099	0.071	0.070	0.065	0.047	0.046
	(0.108)	(0.077)	(0.077)	(0.107)	(0.077)	(0.076)
F statistic	58.49	136.1	198.6	58.49	136.1	198.6
Mean dependent variable	0.257			0.246		
	(0.437)			(0.431)		
Observations	1,725					
Not Owner	0.326**	0.244**	0.225**	0.315**	0.235**	0.217**
	(0.139)	(0.104)	(0.097)	(0.136)	(0.102)	(0.094)
F statistic	31.34	55.81	84.51	31.34	55.81	84.51
Mean dependent variable	0.243			0.229		
	(0.429)			(0.421)		
Observations	1,817					

Notes:*p<0.1 **p<0.05 ***p<0.01. Standard errors clustered by the NUTS2 childhood region-age level are given in the parentheses. Dependent variables are MLFP and employment status. Control variables are the same as the baseline estimation.

Table 8: Effects of grandmothers' proximity on mother's labor force participation and employment status using different instrumented and instrumental variables

	Dependent Variables					
	MLFP			**Employment**		
	District	Town	City	District	Town	City
Analysis 1: *Instrumented variable is equal to 1 if mother or in-law is geographically close and takes 2 if mother and in-law is geographically close.*						
Proximity	0.120**	0.057**	0.043**	0.109**	0.052**	0.039**
	(0.053)	(0.025)	(0.019)	(0.052)	(0.025)	(0.019)
F statistic	133.5	416.4	831.8	133.5	416.4	831.8
Chi-sq(1) P-val	-	-	-	-	-	-
Analysis 2: *Two different instruments for the mother and mother-in-law, identical instrumented variable in the baseline analysis.*						
Proximity	0.131*	0.119**	0.126**	0.117*	0.107*	0.114*
	(0.069)	(0.057)	(0.058)	(0.068)	(0.056)	(0.057)
F statistic	65.89	104.9	137.7	65.89	104.9	137.7
Chi-sq(1) P-val	0.199	0.383	0.587	0.228	0.401	0.590
Analysis 3: *Two different instruments for the mother and mother-in-law, identical instrumented variable in analysis 1.*						
Proximity	0.101**	0.055**	0.042**	0.091*	0.050**	0.038**
	(0.049)	(0.025)	(0.019)	(0.048)	(0.025)	(0.019)
F statistic	78.71	215.9	421.7	78.71	215.9	421.7
Chi-sq(1) P-val	0.322	0.603	0.727	0.345	0.604	0.719
Observations	3,542					

Notes:*p<0.1 **p<0.05 ***p<0.01. Standard errors clustered by the NUTS2 childhood region-age level are given in the parentheses. Control variables are the same as the baseline estimation.

Table 9: Effects of grandmothers' proximity on mother's labor force participation and employment status for different sample specifications

	Dependent Variables					
	MLFP			Employment		
	District	Town	City	District	Town	City
Cut-off age level:9	0.137*	0.102*	0.103*	0.124	0.093	0.094
	(0.078)	(0.058)	(0.059)	(0.077)	(0.058)	(0.058)
F statistic	90.99	176.3	233.3	90.99	176.3	233.3
Mean dependent variable	0.246			0.233		
	(0.431)			(0.423)		
Observations	3,351					
Cut-off age level:11	0.219***	0.165***	0.161***	0.199***	0.150***	0.146***
	(0.076)	(0.057)	(0.056)	(0.075)	(0.057)	(0.056)
F statistic	111.6	212.1	302.5	111.6	212.1	302.5
Mean dependent variable	0.253			0.24		
	(0.435)			(0.437)		
Observations	3,713					
Mothers without chronic illnesses	0.185**	0.143**	0.142**	0.181**	0.141**	0.139**
	(0.084)	(0.066)	(0.066)	(0.084)	(0.066)	(0.065)
F statistic	89.04	159.1	217.5	89.04	159.1	217.5
Mean dependent variable	0.255			0.243		
	(0.436)			(0.429)		
Observations	3,175					
Mothers not living with an elderly individual in need for care	0.192**	0.141**	0.132**	0.172**	0.127**	0.119**
	(0.086)	(0.063)	(0.059)	(0.085)	(0.063)	(0.059)
F statistic	82.54	161.4	248.3	82.54	161.4	248.3
Mean dependent variable	0.253			0.241		
	(0.435)			(0.427)		
Observations	3,451					
Mothers without any personnel estate	0.175**	0.130**	0.132**	0.144*	0.107*	0.108*
	(0.086)	(0.064)	(0.065)	(0.084)	(0.063)	(0.063)
F statistic	77.51	155.0	205.2	77.51	155.0	205.2
Mean dependent variable	0.216			0.203		
	(0.412)			(0.403)		
Observations	3,148					
Non-coresidence mothers	0.223**	0.141**	0.131**	0.184*	0.116*	0.108*
	(0.102)	(0.064)	(0.060)	(0.102)	(0.064)	(0.060)
F statistic	64.94	154.7	235.7	64.94	154.7	235.7
Mean dependent variable	0.261			0.249		
	(0.439)			(0.432)		
Observations	3,191					

Notes:*p<0.1 **p<0.05 ***p<0.01.Standard errors are clustered by the NUTS2 childhood region-age level. Dependent variables are MLFP and employment status. Control variables are the same as the baseline estimation.

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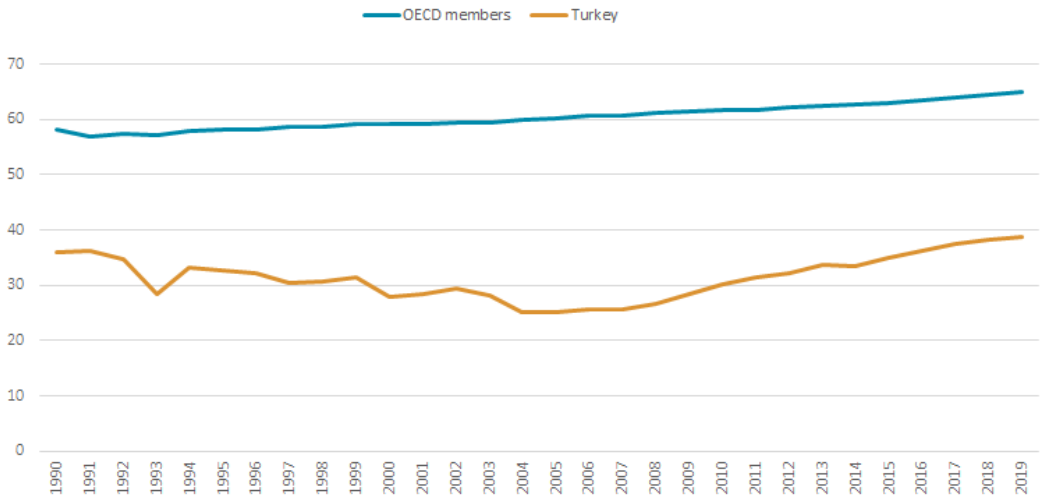
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9 Appendix

Figure 1: Female Labor Force Participation in OECD Countries by years



Source:OECD

Table A1: Family Structure Survey Micro Data Set 2016

The reason of not working	*Observations*
Couldn't find job / unemployed and looking for job	579
Seasonal working	40
Continuing to education / training	1,484
Busy with housework (including care of children, elderly, ill etc. individuals)	9,246
Retired or left the job	607
Disabled or ill (unable to work)	202
Elderly (not retired, but thinking that he/she is too old to work, 60+)	126
Income owner	2
Family and personal reasons	203
Other	35
Total	12,524

Table A2: Effects of number of alive grandmothers on mothers' labor market outcomes

	LFP	**Employment**
Number of grandmothers alive	0.031**	0.028**
	(0.013)	(0.013)
Primary education	0.036*	0.036*
	(0.019)	(0.019)
Secondary education	0.112***	0.108***
	(0.022)	(0.022)
Tertiary education	0.521***	0.514***
	(0.028)	(0.027)
Primary education (Husband)	0.015	0.008
	(0.020)	(0.019)
Secondary Education (Husband)	-0.004	-0.003
	(0.018)	(0.018)
Tertiary Education (Husband)	-0.019	-0.024
	(0.022)	(0.021)
Employment (Husband)	-0.062**	-0.022
	(0.025)	(0.024)
District Center	-0.004	-0.008
	(0.016)	(0.015)
Village	-0.007	-0.011
	(0.016)	(0.015)
Chronic Illness	0.014	0.010
	(0.017)	(0.017)
At least 1 child aged 0-5	-0.083***	-0.081***
	(0.017)	(0.017)
At least 1 child aged 15 and above	-0.039*	-0.035*
	(0.020)	(0.020)
Number of young children	-0.024**	-0.021**
	(0.010)	(0.010)
Observations	3,542	3,542

Notes:*p<0.1 **p<0.05 ***p<0.01. Standard errors clustered by the NUTS2 childhood region-age level are given in the parentheses.

Table A3: Descriptive Statistics by the Number of Alive Grandmothers

	0	**1**	**2**
Labor force participation	0.14	0.208	0.263
	(0.349)	(0.406)	(0.44)
Employment	0.14	0.196	0.25
	(0.349)	(0.397)	(0.433)
At least 1 grandmother lives close(Same District)	0	0.282	0.398
	(0)	(0.45)	(0.49)
At least 1 grandmother lives close(Same Town)	0	0.565	0.699
	(0)	(0.496)	(0.459)
At least 1 grandmother lives close(Same City)	0	0.724	0.822
	(0)	(0.447)	(0.383)
Age	40.613	36.63	32.593
	(6.133)	(6.336)	(5.92)
Primary school or less	0.796	0.619	0.419
	(0.405)	(0.486)	(0.493)
Primary education	0.108	0.128	0.195
	(0.311)	(0.334)	(0.396)
Secondary education	0.065	0.139	0.195
	(0.247)	(0.347)	(0.397)
Tertiary education	0.032	0.114	0.191
	(0.178)	(0.318)	(0.393)
Primary school or less (Husband)	0.591	0.468	0.314
	(0.494)	(0.499)	(0.464)
Primary education (Husband)	0.172	0.158	0.164
	(0.379)	(0.365)	(0.37)
Secondary education (Husband)	0.172	0.202	0.252
	(0.379)	(0.402)	(0.434)
Tertiary education (Husband)	0.065	0.172	0.269
	(0.247)	(0.378)	(0.444)
Childhood region type: City	0.258	0.327	0.375
	(0.44)	(0.47)	(0.484)
Childhood region type: District	0.226	0.269	0.307
	(0.42)	(0.444)	(0.461)
Childhood region type: Village	0.505	0.391	0.3
	(0.503)	(0.488)	(0.458)
At least 1 child aged 0-5 in the household	0.376	0.533	0.702
	(0.487)	(0.499)	(0.457)
At least 1 child aged 15 and above in the household	0.591	0.366	0.164
	(0.494)	(0.482)	(0.37)
Number of young children in the household	1.29	1.516	1.595
	(0.582)	(0.747)	(0.733)
Observations	93	703	2821

Source:Family Structure Survey Micro Data Set 2016. The standard deviations are presented in parentheses.

Table A4: Effects of grandmothers' proximity on mother's labor force participation and employment status if unpaid family workers are included in the paid labor force and employment

	Dependent Variables			
	MLFP		Employment	
	(OLS)	(IV)	(OLS)	(IV)
Same neighborhood/district/village or closer				
Proximity	0.047***	0.171**	0.050***	0.154*
	(0.015)	(0.086)	(0.015)	(0.085)
F statistic:		96.38		96.38
Same town or closer				
Proximity	0.065***	0.128**	0.060***	0.115*
	(0.015)	(0.064)	(0.015)	(0.064)
F statistic:		185.8		185.8
Same city or closer				
Proximity	0.061***	0.124**	0.062***	0.112*
	(0.017)	(0.062)	(0.017)	(0.062)
F statistic:		264.9		264.9
Observations			3,542	

Notes:*** p<0.01, ** p<0.05, * p<0.1. Standard errors clustered by the NUTS2 childhood region-age level are given in the parentheses. Mean of MLFP and Employment is 0.304 (0.46) and 0.291 (0.454). Regressions include age fixed effects, education categories for both spouses (less than primary education (omitted), primary, secondary and tertiary education), whether spouse works, the current region of residence (NUTS-1 level), type of childhood settlement (province center (omitted), district center and sub-district or village), the childhood region (NUTS-2 level), whether self or spouse has a chronic illness, whether there is at least 1 child aged 0-5, whether there is an older sibling, number of young children in the household. The Proximity variable is a dummy variable equal to one if the mother or in-law lives close; otherwise, it is 0. In columns 2 and 4, the number of alive grandmothers used as an instrument. The sample includes all married mothers aged 18-50 inclusive, with at least one child aged 0-10.

Table A5: First Stage Estimation Results

	Dependent variable: Grandparent's proximity:		
	District	Town	City
Number of grandmothers alive	0.168***	0.225***	0.232***
	(0.015)	(0.016)	(0.016)
Primary education	-0.018	-0.024	-0.014
	(0.026)	(0.025)	(0.021)
Secondary education	-0.015	-0.020	-0.006
	(0.026)	(0.024)	(0.020)
Tertiary education	-0.033	-0.006	-0.037
	(0.029)	(0.030)	(0.028)
Primary education (Husband)	-0.002	0.012	0.016
	(0.025)	(0.021)	(0.018)
Secondary education (Husband)	-0.078***	-0.047**	-0.012
	(0.023)	(0.021)	(0.016)
Tertiary education (Husband)	-0.223***	-0.264***	-0.198***
	(0.028)	(0.026)	(0.025)
Employment (Husband)	-0.104***	-0.033	-0.035*
	(0.028)	(0.025)	(0.021)
District Center	-0.007	-0.042**	-0.014
	(0.020)	(0.019)	(0.016)
Village	0.095***	-0.042**	-0.003
	(0.021)	(0.020)	(0.017)
Chronic illness	-0.001	0.012	0.015
	(0.020)	(0.020)	(0.016)
At least 1 child aged 0-5	-0.018	0.012	0.025
	(0.020)	(0.019)	(0.016)
At least 1 child aged 15 and above	0.039	-0.002	-0.013
	(0.024)	(0.023)	(0.020)
Number of young children	0.028**	0.003	0.005
	(0.013)	(0.011)	(0.010)
Observations	3,542	3,542	3,542

Notes:*p<0.1 **p<0.05 ***p<0.01. Standard errors clustered by the NUTS2 childhood region-age level are given in the parentheses.

Table A6: Effects of grandmothers' proximity on mothers' labor force participation

	MLFP					
	District		**Town**		**City**	
	OLS	IV	OLS	IV	OLS	IV
Proximity	0.001	0.182**	0.026**	0.136**	0.030*	0.132**
	(0.013)	(0.080)	(0.013)	(0.060)	(0.015)	(0.059)
Primary education	0.037*	0.040**	0.038*	0.040**	0.037*	0.038**
	(0.019)	(0.020)	(0.019)	(0.019)	(0.019)	(0.019)
Secondary Education	0.114***	0.115***	0.114***	0.115***	0.114***	0.113***
	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
Tertiary education	0.523***	0.527***	0.523***	0.522***	0.524***	0.526***
	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.027)
Primary education (Husband)	0.015	0.015	0.015	0.013	0.014	0.013
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
Secondary Education (Husband)	-0.003	0.010	-0.002	0.003	-0.003	-0.002
	(0.018)	(0.019)	(0.018)	(0.018)	(0.018)	(0.018)
Tertiary education (Husband)	-0.016	0.022	-0.010	0.017	-0.011	0.007
	(0.022)	(0.028)	(0.022)	(0.026)	(0.022)	(0.024)
Employment (Husband)	-0.060**	-0.043	-0.060**	-0.057**	-0.060**	-0.057**
	(0.025)	(0.027)	(0.025)	(0.025)	(0.025)	(0.025)
District Center	-0.004	-0.002	-0.003	0.002	-0.003	-0.002
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Village	-0.008	-0.024	-0.006	-0.001	-0.007	-0.006
	(0.016)	(0.017)	(0.016)	(0.016)	(0.016)	(0.015)
Chronic illness	0.012	0.014	0.012	0.012	0.012	0.012
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
At least 1 child aged 0-5	-0.083***	-0.080***	-0.083***	-0.085***	-0.084***	-0.086***
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
At least 1 child aged 15 and above	-0.040**	-0.046**	-0.040**	-0.039**	-0.040*	-0.037*
	(0.020)	(0.021)	(0.020)	(0.020)	(0.020)	(0.020)
Number of young children	-0.023**	-0.029***	-0.023**	-0.024**	-0.023**	-0.024**
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.009)
Observations	3,542					

Notes:*p<0.1 **p<0.05 ***p<0.01. Standard errors clustered by the NUTS2 childhood region-age level are given in the parentheses. Control variables are the same with the baseline estimation. Age fixed effects, dummy variables for the current region of residence and the childhood region included, but coefficients are not reported.

Table A7: Effects of grandmothers' proximity on mothers' employment status

	Employment					
	District		**Town**		**City**	
	OLS	IV	OLS	IV	OLS	IV
Proximity	0.004	0.164**	0.020	0.123**	0.030*	0.119**
	(0.013)	(0.079)	(0.013)	(0.060)	(0.016)	(0.058)
Primary Education	0.037*	0.039**	0.037*	0.039**	0.037*	0.038**
	(0.019)	(0.020)	(0.019)	(0.019)	(0.019)	(0.019)
Secondary education	0.110***	0.111***	0.110***	0.111***	0.110***	0.109***
	(0.022)	(0.023)	(0.022)	(0.022)	(0.022)	(0.022)
Tertiary Education	0.516***	0.519***	0.515***	0.514***	0.516***	0.518***
	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
Primary Education (Husband)	0.008	0.008	0.008	0.006	0.008	0.006
	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)
Secondary education (Husband)	-0.002	0.009	-0.002	0.002	-0.002	-0.002
	(0.018)	(0.019)	(0.018)	(0.018)	(0.018)	(0.018)
Tertiary education (Husband)	-0.021	0.013	-0.017	0.009	-0.016	0.000
	(0.021)	(0.027)	(0.022)	(0.026)	(0.021)	(0.023)
Employment (Husband)	-0.021	-0.005	-0.021	-0.018	-0.020	-0.018
	(0.024)	(0.026)	(0.024)	(0.024)	(0.024)	(0.024)
District Center	-0.008	-0.007	-0.007	-0.003	-0.007	-0.006
	(0.015)	(0.016)	(0.015)	(0.016)	(0.015)	(0.015)
Village	-0.012	-0.026	-0.011	-0.006	-0.011	-0.010
	(0.015)	(0.017)	(0.015)	(0.015)	(0.015)	(0.015)
Chronic illness	0.009	0.010	0.009	0.009	0.009	0.008
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
At least1 child aged 0-5	-0.081***	-0.078***	-0.081***	-0.082***	-0.081***	-0.084***
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
At least 1 child aged 15 and above	-0.036*	-0.042**	-0.036*	-0.035*	-0.036*	-0.034*
	(0.020)	(0.021)	(0.020)	(0.020)	(0.020)	(0.020)
Number of young children	-0.020**	-0.025**	-0.020**	-0.021**	-0.020**	-0.021**
	(0.010)	(0.010)	(0.010)	(0.009)	(0.010)	(0.009)
Observations	3,542					

Notes:*p<0.1 **p<0.05 ***p<0.01. Standard errors clustered by the NUTS2 childhood region-age level are given in the parentheses. Control variables are the same with the baseline estimation. Age fixed effects, dummy variables for the current region of residence and the childhood region included, but coefficients are not reported.

Table A8: Effects of number of alive grandparents on mothers' and fathers' labor market outcomes

	Dependent Variables					
	LFP	Employment	LFP	Employment	LFP	Employment
Groups:						
Women without young children						
Number of grandmothers alive	0.016	0.014				
	(0.013)	(0.013)				
Fathers with young children						
Number of grandmothers alive			-0.000	0.005		
			(0.005)	(0.010)		
Mothers with young children						
Number of grandfathers alive					0.009	0.009
					(0.010)	(0.010)
Observations	2,509		3,408		3,542	

Notes:*p<0.1 **p<0.05 ***p<0.01. Standard errors are clustered by the NUTS2 childhood region-age level. Control variables are the same as the baseline estimation. For the first four columns, the independent variable: Number of grandmothers alive. For the fifth and sixth columns, the independent variable: Number of grandfathers alive. The results of the sample of married women with children aged 11 and older or no children are presented in columns one and two. The results of the sample of fathers with children aged 10 and younger are presented in the third and fourth columns. The last two columns consider married women with young children.

Table A9: Effects of grandmothers' proximity on mother's labor force participation and employment status

	Dependent Variables			
	MLFP		Employment	
	(OLS)	(IV)	(OLS)	(IV)
Same neighborhood/district/village or closer				
Proximity	0.001	0.182**	0.004	0.164**
	(0.016)	(0.081)	(0.015)	(0.079)
F statistic:		96.38		96.38
Same Town or closer				
Proximity	0.026*	0.136**	0.020	0.123**
	(0.013)	(0.061)	(0.013)	(0.059)
F statistic:		185.8		185.8
Same city or closer				
Proximity	0.030*	0.132**	0.030**	0.119**
	(0.016)	(0.059)	(0.015)	(0.058)
F statistic:		264.9		264.9
Observations			3,542	

Notes:*** p<0.01, ** p<0.05, * p<0.1. Standard errors clustered by the NUTS1 current region-age level are given in the parentheses. Mean of MLFP and Employment is 0.25 (0.433) and 0.237 (0.426). Regressions include age fixed effects, education categories for both spouses (less than primary education (omitted), primary, secondary and tertiary education), whether spouse works, the current region of residence (NUTS-1 level), type of childhood settlement (province center (omitted), district center and sub-district or village), the childhood region (NUTS-2 level), whether self or spouse has a chronic illness, whether there is at least 1 child aged 0-5, whether there is an older sibling, the number of young children in the household. The Proximity variable is a dummy variable equal to one if the mother or in-law lives close; otherwise, it is 0. In columns 2 and 4, the number of alive grandmothers used as an instrument. The sample includes all married mothers aged 18-50 inclusive, with at least one child aged 0-10.

Table A10: Effects of grandmothers' proximity on having a young kid in the household

	Having a young kid
Same neighborhood/district/village or closer	0.053
	(0.048)
F statistics	316.7
Same town or closer	0.039
	(0.035)
F statistics	616.4
Same city or closer	0.037
	(0.033)
F statistics	924.0
Observations	6,067

Notes:*** p<0.01, ** p<0.05, * p<0.1. Standard errors clustered by the NUTS2 childhood region-age level are given in the parentheses. The mean of having a young kid is 0.586 (0.493). Regressions include age fixed effects, education categories for both spouses (less than primary education (omitted), primary, secondary and tertiary education), whether spouse works, the current region of residence (NUTS-1 level), type of childhood settlement (province center (omitted), district center and sub-district or village), the childhood region (NUTS-2 level), whether self or spouse has a chronic illness. The dependent variable is a dummy variable equal to one if the woman has a young child. The Proximity variable is a dummy variable equal to one if the mother or in-law lives close; otherwise, it is 0. The number of alive grandmothers used as an instrument. The sample includes all married women aged 18-50 inclusive.