Family Proximity and
Women's Labor Force Attachment*

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Abstract

Using two large datasets, the National Survey of Family and Households and the public use files of the U.S. Census, we show that close proximity to mothers and mothers-in-law has a positive effect on the labor supply of married women with children. We argue that this effect is due to intergenerational transfers involving childcare. We focus on proximity rather then observed transfers because proximity is less likely to be endogenous. Moreover, the availability of a mother or a mother-in-law to provide unanticipated child care may be more important for the labor force decisions of married women with children than the actual provision of regular childcare; market child care arrangements provide closer substitutes for regular childhood arrangements than for sudden and unanticipated situations in which child care is required. The effects we find are robust and substantial. Compared with married women with young children living more than 30 miles from both mother and mother-in-law, those living within 30 miles of their mother-in-law are 1.8 times more likely to be employed, while those living within 30 miles of both their own mother and their mother-in-law are 1.6 times more likely to be employed. Heckman correction models suggest that the effect of proximity is stronger on the extensive margin (i.e., whether to work or not), than on the intensive margin (i.e., the number of hours worked). The results highlight the need to consider family proximity when analyzing the labor force participation of married women.

Introduction

Although most Americans live within 30 miles of their mothers, little is known about the effect of close proximity on labor force outcomes. Studies of the determinants of family migration or of the effect of migration on labor market outcomes often define location in general terms (urban and rural, high wage and low wage); the proximity of adult children to their parents is usually ignored and, when it is not, it is treated as a location amenity or a 'psychic cost' of moving. (See, for example, Sjaastad (1962), Mincer (1978), Schwartz (1973), Costa and Kahn (2000), Jürges (2004), Compton and Pollak (2007), Gemici (2008), McKinnish (2008), Rabe (forthcoming).)

In this paper we argue that close family proximity often facilitates childcare and elder care, and show that family proximity has strong positive effects on labor market outcomes for women with children. Living close to one's mother entails costs and benefits over the life cycle. Close proximity facilitates grandparent child care as well as care for elderly disabled widows. We focus on mothers and daughters because grandmothers are more likely than grandfathers to provide care for grandchildren, and because elderly mothers are more likely than elderly fathers to receive long-term care from adult children.

We use data from the National Survey of Families and Households (NSFH) and the U.S. Census to estimate the effect of family proximity on the labor force behavior of daughters. Although we hypothesize that the availability of care is the main channel through which close proximity affects labor supply, we model the effect of proximity rather than the effect of observed or predicted time transfers. The reasons are twofold. First, labor supply and the receipt or provision of intergenerational care are likely to be determined simultaneously, creating an endogeneity problem. Second, the availability of care during irregular or unforeseen circumstances may have a larger impact on labor market decisions than the receipt of care per se. For example, the ability of a grandmother to pick up a sick child from school may affect labor market choices whether or not this type of childcare ever occurs. For scheduled and predictable childcare, on the other hand, care by a grandparent and market care may be close substitutes and, if this is the case, regular grandparent care may not affect labor supply decisions.

We find significant positive effects of proximity on labor market outcomes for

married women with children, suggesting that transfers of childcare from grandparents are not simply crowding out other types of care. Although single women with children are more likely to benefit from work-related childcare by their mothers than are married women, proximity has no discernable impact on the labor force behavior of single women with children. This is consistent with a more inelastic labor supply of single women with children, making them less responsive to the type and cost of childcare available.[1] In addition, we find no labor market effect of close proximity to a mother who is over age 75 and/or in poor health - mothers who are likely to be in most need of upward transfers. Thus, the potential for receiving care appears to have a larger effect on labor force decisions that the potential for providing care.

An alternative explanation for the positive correlation between close family proximity and the labor market behavior of married women is the 'tied mover' hypothesis. As outlined in Mincer (1978), Lichter (1983) and Greenwood (1985), the costs of migration are higher if both spouses are attached to the labor force. As a result, single-earner couples are more likely to migrate than two-earner couples. Moreover, while the human capital model of migration suggests that labor market outcomes will be higher for unattached migrants than non-migrants, the same cannot be said of married migrants. Following Mincer's lead, the family migration assumes that couples migrate if and only if migration maximizes their total utility, which is a well-defined notion under the standard assumption of transferable utility. Lundberg and Pollak (2003) argue that, unless spouses contemplating migration can make binding agreements about distribution in the new location, some moves that increase their total utility will be unacceptable because they make one spouse worse off. As a result, couples may fail to make some utility-maximizing moves and, hence, the resulting locational equilibrium need not be Pareto efficient.

We interpret our results as showing an effect of proximity separate from a migration effect for four reasons. First, we include controls for recent migration. Although this does not capture long-run effects of migration, Lichter (1983) argues that the negative impact of migration on the labor market outcomes of married women is

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[1] Kimmel (1998) finds that the labor supply of single mothers is less responsive to child care prices than the labor supply of married mothers.

neglible in the long-run. Second, the positive effect of proximity is found only for married women with young children, while the tied mover effect should be found for all married women. Third, for married women with children, we find a positive effect of close proximity to one's mother-in-law as well as to one's mother. Finally, using U.S. Census data, we distinguish migrants by their destination state. For single women, migration has a positive impact on labor force attachment while migration into one's birth state has a negative effect. For married women with children however, migration has a negative impact on labor force attachment but the effect is less negative for those migrating into their birth state. That is, the tied mover effect is diminished for women moving to their home state.

The effect of proximity on labor force behavior has only recently garnered attention in the economic literature.[2] A number of recent theoretical papers consider the effect of intergenerational transfers of time on the labor force behavior of the younger generation. Pezzin and Schone (1999) develop a model that jointly determines eldercare provision and the labor force participation of daughters. They focus on the care of frail elderly mothers and thus downward transfers of childcare is not a factor in their model. Cardia and Ng (2003) calibrate an overlapping generations model to allow for both time and monetary transfers. They show that time transfers of child care have important positive effects on the labor supply of the younger generation. Belan, Messe and Wolff (2009) develop an overlapping generations model with intergenerational transfers of care and show that a change in the age of retirement affects the employment rates of both generations.

Konrad et al. (2002) model migration away from parents as a noncooperative game. In their model, the eldest child has the first mover advantage and moves away from home to avoid future transfers of care to elderly parents. Rainer and Siedler (2009) develop a similar model and show that only children are more likely to be 'tied' to their parents' location and therefore have worse labor market outcomes than children with

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[2] Klerman and Leibowitz (1990) find a non-significant effect of the availability of relative care on the probability of returning to work post birth. However, their analyses focus on coresident grandmothers rather than grandmothers in close proximity. Declining rates of coresidence (Costa (1999), Ruggles (2007)) and the likelihood that grandmothers in coresidence are likely to be in need of care themselves (Compton and Pollak, 2009) suggest that the focus on coresident grandmothers fails to capture the incidence and importance of transfers.

siblings. Neither of these papers considers the positive effect of the availability or receipt of childcare on the labor force outcomes of women with children. Our findings suggest that downward intergenerational transfers related to childcare may be more important for labor market outcomes than upward transfers related to long-term care of the disabled elderly.

A few recent studies consider the effect of transfers of care on the labor force status of women in Europe, using proximity as an instrument for transfers. Using the SHARE dataset, Dimova and Wolff (2006) use a simultaneous recursive model to estimate the effect of both time and money transfers from mothers on the labor force participation of daughters in 10 European countries. Distance between mothers and daughters is included in the childcare equation, in addition to mothers' demographic characteristics. Their results indicate that transfers of childcare have a small impact on the labor force participation of daughters, but does not affect whether daughters' labor force participation is full-time or part-time. Using the same data, Zamarro (2008) considers the country specific impact of childcare transfers on the labor supply of both mother and daughter, also using a recursive simultaneous equations model. Her results suggest that childcare transfers affect the labor supply of daughters only for Greece and the Netherlands, but is insignificant for other countries. Finally, Dimova and Wolff (2008) find that for the immigrant population in France, grandchild care has a positive and significant impact on the labor supply of daughters.

The effect of family proximity on the labor force outcomes does not appear to have been investigated using U.S data. Our finding that family proximity increases the probability of labor force attachment and employment of married women with young children has important policy implications.   Policies that affect the ability of the older generation to provide childcare – for example, policies that raise the age of retirement - may have unintended consequences for the labor force behavior of daughters. Mosisa and Hipple (2006) discuss recent trends in labor force participation in the U.S. They note that while participation rates decreased in the past decade for women aged 25 to 54, they have been increasing for those aged 55 and older.   Within the 25 to 54 age category, the largest declines came from in the youngest age cohort (aged 25-29) and from young married mothers with high levels of education – exactly those groups who are most likely

to have young children and live away from family. Explanations of the diverging trends for the younger and older cohorts tend to be presented separately, with little if any discussion of possible links between them.

This paper proceeds as follows. Section two describes the survey data and presents a descriptive analysis of work, transfers and proximity. In section three we present regression results using the NSFH data. Logit regressions on the probability of being employed as well as Tobit and selection correction models for hours of work all support the hypothesis that proximity positively affects labor force attachment for married women with young children. In section four we present similar analyses using the 2000 U.S. Census. Because census data does not include information on proximity to family, we investigate the effect of living in one's birth state. The results are consistent with the previous analyses. Section five concludes.

2. Data and Description

2.1 NSFH Data

We use data from the second wave of the National Survey of Families and Households (NSFH) (Sweet and Bumpass, 1996). The second wave (1992-1994) is a five-year follow-up of the original sample of 13,007 households[3]. The original sample includes an oversampling of blacks, Puerto Ricans, Mexican Americans, single-parent families, families with stepchildren, cohabiting couples and recently married couples. We focus on the second wave of the data because doing so enables us to include recent migration as a control variable. The primary respondent was randomly chosen from the adults in the household, but both the respondent and his or her spouse were asked to complete the entire survey. The data includes information on distance, health, marital status, and transfers given and received by both the respondent's mother and mother-in-law. We limit our sample to those women (respondent or spouse) who are aged 25 to 60 and whose mother and/or mother-in-law are **A**live and **L**iving in the **U**nited **S**tates

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[3] In the third wave of the survey, the sample was reduced to include only those with children. As this sample restriction limits our ability to compare across groups, we use the second wave.   Although the data is fifteen years old, the percentages of individuals living in their birth state (the proxy for proximity when using the U.S. Census) has remained fairly constant over the past three decades.

(ALUS)[4]. In some of our regression analyses, we restrict the sample to those with both mother and mother-in-law ALUS. Thus, we exclude individuals for whom both mother and mother-in-law are deceased or live outside the U.S.

2.2 Description: Proximity, Transfers, and Work

Individuals were asked for the distance, in miles, between themselves and their mothers. We define 'close proximity' as a distance of thirty miles or closer.[5] Most Americans live very close to their mothers. The median distance between married women and their mothers is 20 miles, with one-quarter living within 5 miles of their mother. Non-married women live even closer: the median distance is 8 miles when coresidents are included in the distance calculation and 15 miles when they are excluded. Close proximity is strongly correlated with education. Fifty percent of low power couples (couples in which neither spouse has a college degree) live within 30 miles of both mothers, whereas only 18 percent of power couples (couples in which both spouses have college degrees) live within 30 miles of both mothers (Compton and Pollak, 2009).

The NSFH provides information on the incidence of time transfers between individuals and their mother and mother-in-law. The respondent is asked whether, in the previous month, they received or provided general help (shopping, errands, transportation, housework, yard work, car repairs and other help around the house) to or from their parents or parents-in-law. For those with children under the age of 12, they are asked if they received childcare from their parents or parents-in-law while working and/or childcare at other times. The incidence of time transfers is strongly correlated with distance, and gendered. Twenty-one percent of married women living within 30 miles of their mother received work-related childcare from their mother, but a smaller percentage, 16 percent, of those living in close proximity to their mother-in-law received work-related childcare from their mother-in-law. Non-married women were much more likely to receive transfers of childcare. Thirty-eight percent of non-married women in close proximity to their mothers received work-related childcare in the past year. Those

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[4] Non-married women include those who are single never married, divorced, widowed or separated. Co-habitors are included with married individuals.

[5] To account for place-to-place differences in the time it takes to travel 30 miles. our regressions include controls for average commuting time in the county of residence and whether the county is part of an MSA.

living further than 30 miles were much less likely to receive childcare (only 2.7 percent of married women received transfers of work-related childcare from mothers who lived more than 30 miles away, 1.9 percent from distant mothers-in-law and 8.2 percent of non-married women received work-related transfers from mothers living away (Compton and Pollak, 2009).

The question raised by these figures is whether these high levels of time transfers between mothers and daughters translate into labor market effects for women living in close proximity to their family. Table 1 shows the labor force attachment of married and non-married women by proximity to their mother and mother-in-law. Couples who coreside with either mother are not included in the sample. While coresidence may have strong labor market effects, they are a small proportion of the population (2.4 percent of the sample) and are qualitatively different from those not coresiding. For a discussion, see Compton and Pollak (2009). We keep non-married women who coreside with their mothers because the sample size is larger (22% of the sample).

We begin by considering the raw data for non-married women. As predicted by the human capital model of migration, there is a positive relationship between distance and labor market attachment for non-married women without children. For non-married women with children, there is a positive relationship between distance category (co-residence, 30 miles or less, more than 30 miles) and full-time work, but an inverted U-shape relationship between distance category and out of the workforce (the sample size here is a concern, however).

For married women, there are three relevant effects. First, if women migrate prior to marriage, the human capital model predicts that those who live away from their mothers will have higher labor force attachment than those who live close to their mothers. For those who marry and then choose whether or not to migrate, the tied-mover effect would predict the opposite (i.e., that married women who migrate have lower labor force attachment than those who remain). Unfortunately, with these data we can not distinguish between the two. These effects should, however, affect all married women, both those with and those without children. Third, we expect a positive impact on proximity for women with children but not those without children. The employment status of married women is shown in the second panel of table 1. If we assume that those

living away from their mothers are migrants, then we may (broadly) view the first two columns as migrants without proximity and migrants with proximity. We would expect no difference between the two columns for the sample without children – proximity being unimportant for this group's labor supply – but a higher labor force attachment for those with children near their mother-in-law. This is borne out in the raw data. Restricting our attention to those with children, we find a much higher percentage working full-time when living near at least one mother (42 to 45 percent) than living near neither mother (33 percent).

3. The Effect of Proximity on Labor Force Attachment

Using the NSFH data, we estimate the effect of close proximity to mother and/or mother-in-law on the labor force behavior of adult daughters. We consider a dichotomous outcome – whether the daughter works or not – and a continuous outcome – usual weekly hours. For married women, we focus on the effect of close proximity (i.e., within 30 miles) of mother only, mother-in-law only, and both mother and mother-in-law.. For non-married individuals, we consider the effect of coresidence and close proximity to mother. We limit the sample of married individuals to those with both mother and mother-in-law ALUS. This sample restriction enables us to better capture the effect of proximity rather than migration. Daughters who live close to their own mothers are more likely to be non-migrants compared with those who live close to only his mother or close to neither mother.[6] In addition, we include a full set of control variables in all regressions, including (among others) whether the respondent lived in a different city in the first wave of the data to capture the short run effect of migration.[7]

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[6] Of course adult daughters can move away and their mothers can follow. If the migration took place prior to the first wave of NSFH data, we cannot distinguish this group from those who never moved away.
[7] The full set of control variables includes age, age squared, whether mother has a college degree, region (Midwest, South and West (East omitted)), children less than six present in the household, children less than 12 present in the household, average commuting time in the county, whether residing in an MSA, 1990 county level unemployment rate, spouse's hours of work, medical problems, spouse's medical problems, black, Hispanic, education categories (power couples (both spouses have college degrees), part-power her (only she has a college degree and part-power him (only he has a college degree)) whether the daughter is divorced, widowed or separated, whether the respondent lived in a different city six years prior, whether mother or mother-in-law is over age 75 or in poor health, whether siblings or spouse's siblings live within 25 miles.

Table 2 presents the results from logit regressions on employment for both daughters and sons, married and non-married (we present the coefficients as odds ratios). Our results indicate a strong positive effect on the probability of employment for married women living near both mothers and those living near their mother-in-law. Compared with those not close to either mother, married women who live within 30 miles of their mother-in-law are 1.3 times more likely to be employed, while married women in close proximity to both mother and mother-in-law are 1.5 times more likely to be employed. Proximity has no significant or discernable effect on the probability of employment for men or for single women.

In table 3 we focus on married women and divide the sample into two subsamples: those who are most likely to benefit from transfers of childcare and those who are most likely to provide transfers of eldercare.[8] If the positive impact of proximity is due to a migration or tied mover effect, we would expect a positive coefficient for all married women. In fact, we find a positive coefficient on close proximity only for the subsample with young children. Compared with their counterparts not living close to either mother, married women with children under the age of twelve who live close to their mother-in-law are 1.8 times more likely to be employed, while those living close to both mothers are 1.6 times more likely to be employed. In contrast, we find no effect of proximity for married women without young children. Moreover, there is no discernable effect of proximity for those women most likely to be providing elder care – those whose mothers are over age 75 and/or in poor health. Thus, it appears that the potential for receiving time transfers in the form of childcare has a stronger impact on labor force behavior than the potential for providing care. In the final column, we limit the sample to those who are most likely to benefit from childcare transfers – married women with children under the age of six, with neither mother over age 75 and/or in poor health. This group shows the strongest positive affect of proximity.

Proximity to one's mother-in-law has a stronger effect on labor market outcomes than proximity to one's own mother. The effect of close siblings suggests a possible explanation: strategic behavior in the provision of childcare. In the first column we see

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[8] Regressions were run for the same subgroups for single women and men. Again, we found no significant effect of close proximity for these groups.

that the positive effect of living close to one's mother-in-law is offset if one's spouse has siblings within 25 miles. A negative impact of siblings is also seen for the subgroups with children, although these coefficients just fail to meet standard levels of significance. Because mothers-in-law are more likely to provide childcare transfers to their own daughters than to their daughters-in-law, the presence of his siblings may reduce childcare transfers. On the other hand, if there are no siblings in close proximity, mothers-in-law may have a stronger incentive to provide childcare transfers than mothers. Presumably altruistic motives for providing eldercare are weaker among daughters-in-law, in response, mothers-in-law may provide larger transfers of childcare in the hope of increasing the probability of receiving eldercare in the future. The close proximity of own siblings has no impact on the labor force attachment of women with children, but it does have a positive impact on the labor force status of women with mothers in need of care.

We next turn to hours per week, using both a Tobit and a Heckman correction for sample selection. The results, presented in table 4, indicate that the positive effect of close proximity for married women is again driven by those with children. The effect is stronger for those living near his mother, compared with those living near both mothers, and the effect is primarily on the extensive margin (whether the daughter works or not) rather than on the intensive margin (the number of hours worked).

Overall, the findings indicate that proximity to one's mother and/or mother-in-law has a positive effect on labor force attachment, but only for daughters with children. There are two caveats. First, the results may be biased due to endogeneity. As mentioned above, we estimate the effect of proximity on labor force attachment rather than the effect of transfers themselves to reduce contamination by endogeneity. The European studies use distance as an instrument for childcare provision, but there remain concerns that women with preferences for both children and labor force attachments may be more likely to reside near family, compared with women who have preferences for one or the other. Additionally, choices made in the marriage market may reflect underlying preferences for work/children combinations. As a robustness check, we run the following bivariate probit model:

$$Y_{1i}^* = X_{1i}\beta_1 + Y_{2,i}\beta_2 + U_{1i}$$

$$Y_{2i}^* = Z_{2i}\gamma_2 + U_{2i}$$

$$\begin{array}{l} Y_{ki} = 1 \ if \ Y_{ki}^* > 0 \\ Y_{ki} = 0 \ if \ Y_{ki}^* \le 0 \end{array} \quad, k = 1,2$$

where Y_{1i} is an observed dichotomous variable equal to one if the daughter works positive hours, (i.e.,. if the latent variable Y_{1i}^* >0); Y_{2i} is an observed dichotomous variable equal to 1 if the daughter is in close proximity to his mother or to her mother (i.e.,. if the latent variable Y_{2i}^*>0). The vectors X_{1i} and Z_{2i} are exogenous variables with $Z_{2i} \subset X_{1i}$. The error terms are assumed to be iid normal, with the following distribution

$$\begin{pmatrix} U_{1i} \\ U_{2i} \end{pmatrix} \sim N \begin{bmatrix} 0, \begin{bmatrix} 1 & \rho \\ \rho & 1 \end{bmatrix} \end{bmatrix}.$$

If ρ=0, U_i is exogenous and the log likelihood becomes the sum of the log-likelihood function of two univariate probits. Table 5 presents the key maximum likelihood estimates of the model. The regression variables that are included in Z_{2i} but not in X_{1i} are indicators for only child and eldest child status, and an indicator denoting whether or not her mother is widowed.[9] These variables are assumed to affect the likelihood of close proximity, but not labor market behavior. The top panel shows the results for the model in which the proximity variable, Y_{2i}^*, denotes whether the daughter lives close to her mother (includes those living close to both mothers). The results suggest that proximity to her mother has no impact on the employment status of daughters, even daughters with young children. The bottom panel shows the results for the model in which the proximity variable, Y_{2i}^*, denotes whether the daughter lives close to his mother (including those living close to both mothers). Here, proximity is significant for married women with children. Note however, that in all cases, the null hypothesis of exogeneity

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[9] For the model using "close to his mother" as the proximity variable, the additional variables in Z_{2i} are an indicator for her spouse being an only child, an indicator for her spouse being the eldest child, and an indicator for whether his mother is widowed.

cannot be rejected and therefore the simple regression models above are suitable for the analyses.

The second caveat is the small sample size in the NSFH. To alleviate this concern, we conduct similar analyses using the public use files of the 2000 U.S. Census. (Ruggles et al., 2009).

4. Birth State and Labor Force Attachment

Using the 2000 public use microdata files of the 2000 U.S. Census, we construct a dataset that includes all women aged 25-45 who were born in the U.S. (Ruggles et al., 2009). The U.S. Census does not ask respondents the distance to their mothers. We can, however, determine whether the daughter resides in her birth state, and we use this variable as a proxy for close proximity. We begin by considering only residence in her birth state (as a proxy for proximity to her mother). Then, for couples, we define three indicator variables: (1) whether the couple lives in the birth state of both spouses; (2) whether the couple lives in only her birthstate and (3) whether the couples lives only in his birthstate. To control for migration effects, we include controls for whether the woman was in the same state five years previously. We also include controls for the geographic size of the current state; we do this because those living in large birth states (e.g., Texas, California) may well have moved within the state and, hence, living in the birthstate may be a weak proxy for proximity to mother. In contrast, those living in small birth states (e.g., Rhode Island, Delaware), even if they have moved, are more likely to live in close proximity to mother. Because we have no information on mothers not residing with their adult children, we limit the sample to those aged 25-45 (the NSFH sample was aged 25-60) in order to maximize the probability that the mothers of those in our sample are still alive. As we have no information on the age or health of mothers, we focus on the effect of proximity on women with children. Although we would prefer to control for age and health of the mother, recall that when we did so using NSFH data we found no impact of proximity on the labor force status

4.1   Birth State and Migration Effects

Table 6 presents the labor force participation rate and the employment rate of women by marital status, the presence of young children, current state and state of residence five years earlier.[10] We focus on married women and single never married (SNM) women, omitting those who are currently divorced, widowed or separated. The first two columns show the employment and labor force participation rates for women who are currently in their state of birth; the second two columns present the information for those currently outside their state of birth. Columns (A) and (C) are those who are in the same state as five years previous, who we will call *stayers*; columns (B) and (D) are those who are not in the same state as they were five years previous, who we will call *movers.*[11] The final two columns show the effect of living in one's birth state for movers and stayers.

Married women living in their birth state are slightly more likely to be employed and in the labor force than those living elsewhere. As in the NSFH, this result is driven by married women with young children. In contrast, SNM women living in their birth state are much less likely to be employed compared with those living elsewhere. This is true for SNM women with and without children, although the negative effect of birth state is less for those with young children.

The results from logit regressions estimating the probability of being in the labor force and the probability of being employed for these same samples are presented in table 7[12]. The full set of controls is included in the regressions, although we present variables.[13] Proximity and migration are combined into the four categories that correspond to the columns in table 6. The results show that even after including the full set of controls, married women living outside their state of birth are less likely to be in the labor force and less likely to be employed, compared with those in their birth state.

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[10] For the census data, we focus on children less than 5, rather than children less than 6 as in the NSFH, to ensure that the children of stayers were born in the current location.

[11] We cannot identify individuals who moved between states within the five years and then returned, nor can we identify those who moved within state.

[12] The samples are reduced for the regressions, due to computing time. A random 20 percent sample was drawn for these regressions.

[13] Controls include age categories, education (less than high school, more than high school, bachelor's degree, more than bachelor's degree; high school omitted), disability status, black, Hispanic, home ownership (mortgaged , rented; owned omitted), whether in a metropolitan area, other household income, square miles of the current state, whether they hold a mortgage on their house or rent (home ownership omitted), number of children, number of children less than 5, U.S. region (9 regions).

For stayers, the effect is equivalent for those with and without young children. For movers, the positive effect of proximity is greater for those with young children. That is, while movers are much less likely to be in the labor force or employed compared with stayers, this negative effect of moving is weaker for those moving into their birth state than those moving into another state, especially if there are young children in the household.

The results for SNM women tell a much different story. After including the full set of demographic controls, we find that proximity and migration have very little effect on the labor force and employment rates of SNM women. Few results are statistically significant – SNM women without children who moved outside their birth state have higher levels of labor force participation, while those who moved into their birth state have slightly lower levels of employment. For those with children, there is a small positive effect on the probability of employment for stayers outside their birth state. The dearth of results for the sample of SNM once again suggests that the effect of proximity is larger for the married sample, who have more elastic labor supply responses.

4.2   Interaction of Young Children and Birth State

We found that the effect of living in one's birth state was similar for women with young children and those without. If the positive impact reflects the possibility of transfers from family, we would expect to see the proximity effect only for those with young children. In the previous sample, however, the subset of women without young children includes women with zero children and women with children older than five years of age. Those with older children may still benefit from grandparent transfers, and there may be long-term labor force effects of stronger attachment when their children were younger.   In the next sample, we exclude those with older children and focus on married women with either zero children or at least one child under the age of five.

Table 8a presents the regression results for married women with zero or at least one child under the age of five. We estimated four labor force outcomes: labor force participation, employment, usual weekly hours of work, and weeks worked in the previous year.   We ran the regressions separately on the samples with and without children, and then on the full sample with an interaction term included to capture the

different impact of proximity on the two subsamples. A consistent story emerges from the regressions. For women without children, living in the birth state has a positive impact on labor force participation, employment and weeks worked, but a negative impact on hours of work. For women with children, the effect of proximity is positive and higher in magnitude for all labor force characteristics. In tables 8b, we replicate the previous regressions with the full sample and interaction terms, this time including indicator variables for whether the married woman lives in the birth state of both spouses, in her birth state but not in his birth state, or in his birth state but not in her birth state. For women without children, there is again a small positive impact of birth state on all labor market outcomes except hours. The presence of children greatly increases the positive impact of birth state. In contrast to the results from the NSFH, the effect on labor force participation and employment is higher for those in the birth state of both spouses. The effect on hours worked and weeks worked are higher for those residing in his or both birth state, compared with residing in only hers.

5. Conclusion

Using two large U.S. datasets, we have demonstrated that living in close proximity to one's mother and/or one's mother-in-law has a strong positive effect on the labor force participation of married women with children. We argue that child care is the mechanism through which proximity affects labor supply, but we focus on proximity rather than child care per se for two reasons. First, proximity is less likely than actual child care hours to be endogenous. Second, the ability of the family to provide childcare in response to unanticipated needs may be more important than the provision of scheduled childcare.

We find a positive effect of proximity only for married women with children. Single women with children are less responsive to the proximity of family members, perhaps because their labor supply is more inelastic. Unlike the effect of downstream transfers (e.g., childcare), factors that suggest the need for upstream transfers (e.g., care for a disabled elderly mother or mother-in-law) appear to have little effect on labor force attachment. We find that proximity has no differential effect on women with mothers who are in ill health and/or over age seventy-five.

Family proximity, which has received very little or no attention from economists, may affect estimates of the tied mover effect. It is well known that couples who do not migrate are more likely to be dual-earner couples compared with couples that do migrate. It is also well known that migrating wives often suffer a wage penalty following migration. These effects may in part be due to the presence of grandmothers in the home location. Differing trends in labor force attachment of women under 30 and women over 55 may be connected to each other and to family proximity. Increased labor force participation of grandmothers may have reduced their willingness or ability to respond to unanticipated childcare for their daughters or daughters-in-law.

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Table 1: Married Women's Labour Force Attachment

	Not close to mother	Close to mother	Coreside with mother	
Non Married Women				
No Children <12				
Does not Work	18.85	22.40	29.11	
Works Part-time	15.01	11.41	15.43	
Works Full-Time	67.14	66.18	55.46	
Sample Size	492	623	218	
Children<12				
Does not Work	32.11	40.47	29.40	
Works Part-time	13.99	9.43	20.26	
Works Full-Time	53.90	50.10	50.34	
Sample Size	152	300	52	
	Close to neither mother	Close to his mother only	Close to her mother only	Close to both mothers
Married Women				
No Children <12				
Does not Work	21.83	25.87	23.46	19.36
Works Part-time	17.81	15.44	18.80	15.57
Works Full-Time	60.35	58.68	57.75	65.07
Sample Size	340	197	202	372
Children<12				
Does not Work	43.94	33.56	39.93	35.27
Works Part-time	23.15	20.93	18.24	22.78
Works Full-Time	32.91	45.51	41.83	41.94
Sample Size	498	280	280	785

NSFH Wave II. Weighted percentages. Sample includes all women aged 24-60 whose mother is ALUS. The sample of married women includes only those for whom both mothers are ALUS. The term 'close' refers to a distance of 30 miles or less, not including coresidents.

Table 2: Logit Regressions, Dependent Variable: Positive Hours of Work

	Married Women	Married Men	Non-Married Women	Non-Married Men
Live With Mother			0.828	0.736
			(0.425)	(0.260)
Live Close to Own Mother Only	1.052	0.774	0.937	0.725
	(0.749)	(0.286)	(0.739)	(0.286)
Live Close to Spouse's Mother Only	1.316*	1.196		
	(0.081)	(0.475)		
Live Close to Both mothers	1.465**	1.193		
	(0.014)	(0.464)		
Spouse's Hours Work	1.011***	1.021***		
	(0.000)	(0.000)		
Medical Problems	0.702***	0.436***	0.344***	0.406***
	(0.002)	(0.000)	(0.000)	(0.000)
Spouse's Medical Problems	1.008	0.929		
	(0.945)	(0.654)		
Black	1.596**	0.864	0.672**	0.523**
	(0.011)	(0.560)	(0.034)	(0.015)
Hispanic	0.834	0.797	1.484	0.946
	(0.375)	(0.416)	(0.207)	(0.898)
Both Spouses have a college degree	1.085	1.624**		
	(0.546)	(0.039)		
Only He has a college degree	0.949	2.439***		1.131
	(0.711)	(0.002)		(0.675)
Only She has a college degree	2.344***	0.545***	2.013***	
	(0.000)	(0.007)	(0.002)	
Children less than 12	0.573***	1.570**	0.490***	1.092
	(0.000)	(0.018)	(0.000)	(0.840)
Divorce/Widowed Separated			1.076	0.725
			(0.696)	(0.207)
Different City 6 years Prior	0.920	1.035	0.605***	1.105
	(0.420)	(0.835)	(0.004)	(0.685)
Mother over 75 or in Poor Health	0.889	0.877	0.951	0.617
	(0.312)	(0.440)	(0.770)	(0.042)
	0.960	1.020		
Spouse's Mother over 75 or in Poor Health	(0.727)	(0.910)		
Siblings within 25 miles	1.079	0.643**	0.965	0.979
	(0.521)	(0.017)	(0.849)	(0.943)
Spouse's Siblings within 25 miles	0.780**	0.985		
	(0.034)	(0.934)		
Observations	2450	2409	1072	572
LRchi2(DF)	203.59(27)	158.59(27)	115.61(20)	48.99(20)
Pseudo R2	0.0659	0.0988	0.0952	0.079

NSFH Wave II data. Coefficients are presented as odds ratios, p-values in parentheses. The sample includes all individuals in marriage category, aged 25-60 inclusive for whom both mother (and mother-in-law if applicable) are ALUS. Control variables included, but not presented here for space considerations include age, age squared, whether mother has a college degree, region (Midwest, South, West), children less than 6 present in the household, average commuting time in the county, whether residing in an MSA, 1990 county level unemployment rate.

Table 3: Logit Regressions, Dependent Variable: Positive Hours of Work
Sample: Married Women, with both mother and mother-in-law ALUS

	All	With Kids<12	No Kids<12	Her Mother over aged 75 or in poor health	Kids<6, Neither mother in poor health or over age 75
Live close to her mother only	1.052	1.249	0.734	0.713	1.906**
	(0.749)	(0.265)	(0.256)	(0.359)	(0.046)
Live close to his mother only	1.316*	1.770***	0.787	0.735	2.503***
	(0.081)	(0.004)	(0.376)	(0.412)	(0.002)
Live close to both mothers	1.465**	1.560**	1.208	1.356	1.651*
	(0.014)	(0.019)	(0.515)	(0.405)	(0.083)
Lived in a different city in first wave	0.920	0.898	0.994	1.022	0.641**
	(0.420)	(0.381)	(0.976)	(0.932)	(0.013)
Children less than 12	0.573***			0.528**	
	(0.000)			(0.044)	
Children less than 6	0.540***	0.540***		0.436***	
	(0.000)	(0.000)		(0.005)	
Her mother over age 75 or in poor health	0.889	0.848	0.969		
	(0.312)	(0.271)	(0.871)		
His mother over age 75 or in poor health	0.960	0.935	0.938	0.692	
	(0.727)	(0.656)	(0.739)	(0.153)	
Her siblings within 25 miles	1.079	0.968	1.445*	1.240	0.850
	(0.521)	(0.827)	(0.080)	(0.437)	(0.466)
His siblings within 25 miles	0.780**	0.799	0.773	0.947	0.697
	(0.034)	(0.119)	(0.220)	(0.848)	(0.105)
Observations	2450	1534	916	473	672
LRchi2	203.59	103.56	79.82	67.28	57.1
(DF)	(27)	(26)	(25)	(26)	(23)
Pseudo R2	0.0659	0.0509	0.08	0.1095	0.0626

NSFH Wave II data. Coefficients are presented as odds ratios, p-values in parentheses. The sample includes all currently married women aged 25-60 inclusive for whom both mother and mother-in-law are ALUS. Control variables included, but not presented here for space considerations include age, age squared, spouse's hours of work, medical problems, spouse's medical problems, Black, Hispanic, whether mother has a college degree, region (Midwest, South, West), education of the couple (whether both, she only or he only have a college degree), average commuting time in the county, whether residing in an MSA, 1990 county level unemployment rate.

Table 4: Tobit, Heckman Regressions, Dependent Variable: Weekly Usual Hours of Work
Sample: Married Women, with both mother and mother-in-law ALUS

	All	With Kids<12	No Kids<12	Her Mother over aged 75 or in poor health	Kids<6, Neither mother in poor health or over age 75
Tobit Regression					
Live close to her mother only	0.504	4.124	-4.429*	-6.590	9.456*
	(2.007)	(2.933)	(2.604)	(5.037)	(4.993)
Live close to his mother only	4.788**	10.457***	-1.903	-3.503	16.213***
	(1.971)	(2.823)	(2.625)	(5.045)	(4.460)
Live close to both mothers	4.330**	5.796**	2.003	2.696	6.941
	(1.959)	(2.770)	(2.683)	(4.793)	(4.433)
Heckman Regression					
Hours					
Live close to her mother only	-0.395	0.902	-1.679	-3.593	1.484
	(1.051)	(1.601)	(1.403)	(2.755)	(7.790)
Live close to his mother only	2.223**	3.265*	1.021	0.808	7.340
	(1.048)	(1.719)	(1.413)	(2.717)	(9.879)
Live close to both mothers	-0.410	-1.022	0.641	-1.165	1.127
	(1.068)	(1.608)	(1.361)	(2.446)	(6.710)
Selection Equation: Positive Hours					
Live close to her mother only	0.012	0.125	-0.213	-0.221	0.421**
	(0.094)	(0.121)	(0.155)	(0.221)	(0.197)
Live close to his mother only	0.153	0.343***	-0.166	-0.187	0.566***
	(0.094)	(0.119)	(0.155)	(0.225)	(0.180)
Live close to both mothers	0.201***	0.259***	0.036	0.109	0.362**
	(0.093)	(0.115)	(0.161)	(0.218)	(0.174)
Censored Observations	800	585	215	167	281
Uncensored Observations	1650	949	701	304	392

NSFH Wave II data. Coefficients are presented as odds ratios, p-values in parentheses. The sample includes all currently married women aged 25-60 inclusive for whom both mother and mother-in-law are ALUS. Control variables included, but not presented here for space considerations include age, age squared, spouse's hours of work, medical problems, spouse's medical problems, Black, Hispanic, whether mother has a college degree, region (Midwest, South, West), education of the couple (whether both, she only or he only have a college degree), average commuting time in the county, whether residing in an MSA, 1990 county level unemployment rate, lived in a different city in first wave, children less than 6, children less than 12, mother over age 75 or in poor health, spouse's mother over age 75 or in poor health, siblings within 25 miles, spouse's siblings within 25 miles.

**Table 5: Bivariate Probit: Probability of Positive Hours of
Sample: Married Women, with both mother and mother-in-law ALUS**

	All	With Kids<12	No Kids<12
Live Close to Her Mother	-0.633	-0.002	-0.064
	(0.681)	(1.174)	(1.129)
rho	0.441	0.036	0.123
	(0.416)	(0.706)	(0.687)
Observations	2504	1567	937
Likelihood Ratio Test Rho=0			
Prob>Chi2	0.3683	0.9593	0.8536
Live Close to His Mother	0.525	1.288***	-0.674
	(1.776)	(0.383)	(0.843)
rho	-0.247	-0.899	0.445
	(1.100)	(0.549)	(0.514)
Observations	2504	1567	937
Likelihood Ratio Test Rho=0			
Prob>Chi2	0.8462	0.2052	0.4611

NSFH Wave II data. Coefficients are presented as odds ratios, p-values in parentheses. The sample includes all currently married women aged 25-60 inclusive for whom both mother and mother-in-law are ALUS. Control variables included, but not presented here for space considerations include age, age squared, spouse's hours of work, medical problems, spouse's medical problems, Black, Hispanic, whether mother has a college degree, region (Midwest, South, West), education of the couple (whether both, she only or he only have a college degree), average commuting time in the county, whether residing in an MSA, 1990 county level unemployment rate, lived in a different city in first wave, children less than 6, children less than 12, mother over age 75 or in poor health, spouse's mother over age 75 or in poor health, siblings within 25 miles, spouse's siblings within 25 miles. Additional controls in the secondary regression include whether she (or spouse) is an only child or eldest child and whether her mother (or his mother) is unmarried.

Table 6: Employment and Labor Force Participation by State of Residence 5 Years Prior

	Currently in Birth State		Currently not in Birth State			
	(A) In Same State 5 Years Prior	(B) In Different State 5 Years Prior	(C) In Same State 5 Years Prior	(D) In Different State 5 Years Prior	Impact of Proximity for Stayers (A) – (C)	Impact of Proximity on Movers (B) – (D)
Married Women (Obs=1052022)						
Employed	72.39	64.07	71.87	62.83	0.52	1.24
In Labor Force	74.53	67.02	73.82	65.83	0.71	1.19
Married, No young children (Obs=722820)						
Employed	76.75	71.67	76.44	72.16	0.31	-0.49
In Labor Force	78.96	75.01	78.54	75.52	0.42	-0.51
Married, Children less than 5 (Obs=329202)						
Employed	62.55	53.33	61.17	47.35	1.38	5.98
In Labor Force	64.55	55.72	62.79	49.76	1.76	5.96
Single, Never Married (SNM) (Obs=316149)						
Employed	72.70	77.41	78.55	83.90	-5.85	-6.49
In Labor Force	78.33	83.75	83.11	88.30	-4.78	-4.55
SNM, No young children (Obs=284143)						
Employed	73.99	78.95	79.62	85.06	-5.63	-6.11
In Labor Force	79.06	83.81	84.75	89.12	-5.69	-5.31
SNM, Children less than 5 (obs=32006)						
Employed	62.55	64.15	66.71	67.36	-4.16	-3.21
In Labor Force	72.59	75.33	75.23	76.63	-2.64	-1.3

U.S. Census 2000 unweighted IPUMS sample. Includes women aged 25-45, born in the U.S.

Table 7: Effect of Migration on Labor Force Participation and Employment

	Married		Single Never Married	
	No Children Less than Five Years	Children Less than five	No Children Less than Five Years	Children Less than five
Logit: In Labor Force				
Omitted Case: (A) Same State, Birth State				
(B) Different State, Currently in Birth State	0.681***	0.652***	1.017	0.958
	(0.000)	(0.000)	(0.828)	(0.811)
(C) Same State, Not Birth State	0.925***	0.931***	1.047	1.112
	(0.000)	(0.000)	(0.126)	(0.182)
(D) Different State, Currently Not in Birth State	0.638***	0.522***	1.183***	1.041
	(0.000)	(0.000)	(0.001)	(0.770)
Test (B) = (D) : Chi2(1)	1.520	15.310	2.880	0.140
Pr>Chi2	0.218	0.000	0.090	0.705
Logit: Employed				
Omitted Case: (A) Same State, Birth State				
(B) Different State, Currently in Birth State	0.673***	0.660***	0.890*	1.243
	(0.000)	(0.000)	(0.092)	(0.211)
(C) Same State, Not Birth State	0.925***	0.926***	1.044	1.160**
	(0.000)	(0.000)	(0.124)	(0.045)
(D) Different State, Currently Not in Birth State	0.613***	0.508***	1.075	0.953
	(0.000)	(0.000)	(0.110)	(0.699)
Test (B) = (D) : Chi2(1)	3.370	21.100	5.630	1.640
Pr>Chi2	0.066	0.000	0.018	0.201

U.S. Census 2000. Sample: Women aged 25-45, born in the U.S. The full set of controls are included in each regression. These include age 35-45 (age 25-34 base) , less than high school, more than high school, bachelor's degree, more than bachelor's degree (high school base), disability, Black, Hispanic, house mortgaged, rent (house owned base), whether in a metropolitan area, other household income, whether in different state five years prior, size of current state (square miles), U.S. region, number of children and number of children less than 5 years of age.

Table 8a: Impact of Birth State on Labor Force Attachment of Married Women

	Logit: In Labor Force	Logit: Employed	Tobit: Usual Hours Worked (Weekly)	Tobit: Weeks worked in previous year	Obs
	Odds Ratio (P-value)	Odds Ratio (P-value)	Coef (SE)	Coef (SE)	
Sample: Married women without children					
Living in birth state	1.074***	1.105***	-0.321***	2.867***	204058
	(0.000)	(0.000)	(0.081)	(0.271)	
Sample: Married women with one child under 5					
Living in birth state	1.239***	1.238***	0.838***	4.848***	105949
	(0.000)	(0.000)	(0.139)	(0.375)	
Sample: All Married women					
Living in birth state	1.023*	1.058***	-0.539***	2.552***	310007
	(0.091)	(0.000)	(0.085)	(0.271)	
Child under 5	0.284***	0.319***	-9.962***	-26.056***	
	(0.000)	(0.000)	(0.112)	(0.344)	
Birth state* Child	1.285***	1.240***	1.786***	2.801***	
	(0.000)	(0.000)	(0.141)	(0.430)	

U.S. Census 2000. Sample: Married women aged 25-45, born in the U.S., with zero or one child five years of age and under.   Each column, each panel presents results from a separate regression. The full set of controls are included in each regression. These include age 35-45 (age 25-34 base) , less than high school, more than high school, bachelor's degree, more than bachelor's degree (high school base), disability, Black, Hispanic, house mortgaged, rent (house owned base), whether in a metropolitan area, other household income, whether in different state five years prior, size of current state (square miles), U.S. region.

Table 8b: Impact of birth states on labour force attachment of married women

	Logit: In Labor Force	Logit: Employed	Tobit: Usual Hours Worked (Weekly)	Tobit: Weeks worked in previous year	Obs
	Odds Ratio (P-value)	Odds Ratio (P-value)	Coef (SE)	Coef (SE)	
Sample: Full					
(1) In Her Birth State	1.122***	1.126***	-0.125	3.210***	310007
	(0.000)	(0.000)	(0.129)	(0.412)	
(2) In His Birth State	1.075**	1.076***	-0.313**	1.958***	
	(0.001)	(0.000)	(0.136)	(0.432)	
(3) In Both Birth State	1.034**	1.080***	-0.816***	3.434***	
	(0.042)	(0.000)	(0.104)	(0.331)	
Child <5	0.263***	0.296***	-10.880***	-27.731***	
	(0.000)	(0.000)	(0.138)	(0.419)	
(4) In Her Birth State * Child<5	1.243***	1.220***	2.122***	3.445***	
	(0.000)	(0.000)	(0.219)	(0.666)	
(5) In His Birth State * Child<5	1.256***	1.246***	2.644***	4.815***	
	(0.000)	(0.000)	(0.233)	(0.708)	
(6) In Both Birth State * Child<5	1.444***	1.381***	2.922***	4.885***	
	(0.000)	(0.000)	(0.171)	(0.518)	
(1) = (2)	0.081	0.043	0.207	0.009	
(1) = (3)	0.000	0.020	0.000	0.557	
(2) = (3)	0.050	0.831	0.000	0.000	
(4) = (5)	0.773	0.540	0.041	0.079	
(4) = (6)	0.000	0.000	0.000	0.018	
(5) = (6)	0.000	0.000	0.194	0.914	

U.S. Census 2000. Sample: Married women aged 25-45, born in the U.S., with zero or one child five years of age and under. Each column, each panel presents results from a separate regression. The full set of controls are included in each regression. These include age 35-45 (age 25-34 base), less than high school, more than high school, bachelor's degree, more than bachelor's degree (high school base), disability, Black, Hispanic, house mortgaged, rent (house owned base), whether in a metropolitan area, other household income, whether in different state five years prior, size of current state (square miles), U.S. region.