

Family Proximity, Childcare, and Women's Labor Force Attachment*

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October 9, 2011
Comments welcome

*We thank Sarah MacPhee, Karl Scholz, Betsey Stevenson, Christopher Taber, Jeffrey Wooldridge, and participants at the CNISS workshop at Washington University in St. Louis, the Michigan Retirement Research Center workshop, the NBER Cohort Studies Conference, the University of Wisconsin, and the Center for Retirement Research at Boston College for helpful comments. Earlier versions of this paper were presented at the American Economic Association meetings in Atlanta and the International Association for Time Use Research in Paris. The usual disclaimer applies.

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Abstract

We show that close geographical proximity to mothers or mothers-in-law has a substantial positive effect on the labor supply of married women with young children, and we argue that the mechanism through which proximity increases labor supply is the availability of childcare. We interpret availability broadly enough to include not only regular scheduled childcare during work hours but also an insurance aspect of proximity (i.e., a mother or mother-in-law who can to provide irregular or unanticipated childcare). Using two large datasets, the National Survey of Families and Households and the public use files of the U.S. Census, we find that the predicted probability of employment and labor force participation is 4-10 percentage points higher for married women with young children living in close proximity to their mothers or their mothers-in-law compared with those living further away.

1. Introduction

In this paper we show that close geographical proximity to mothers or mothers-in-law has a substantial positive effect on the labor supply of married women with young children.¹ Using two large datasets, the National Survey of Families and Households (NSFH) and the public use files of the U.S. Census, we find that the predicted probability of employment and labor force participation is 4-10 percentage points higher for married women with young children living close to their mothers or their mothers-in-law compared with those living further away. We argue that the availability of childcare is the mechanism linking proximity and labor supply. We interpret availability broadly enough to include not only regular scheduled childcare during work hours but also an insurance aspect of proximity (i.e., a mother or mother-in-law who can to provide irregular or unanticipated childcare).

Two endogeneity issues complicate estimation. The first arises because childcare decisions and labor supply decisions are often made simultaneously. We deal with this endogeneity issue by with using proximity as an instrument for childcare transfers from mother or mother-in-law. This IV approach assumes that proximity is exogenous.

The second complication arises because of the potential endogeneity of proximity. If proximity is not exogenous but is related to variables that affect labor supply and childcare decisions (e.g., both proximity and labor supply may be influenced by human capital investment, fertility and the marriage market), then the IV results are misleading. To deal with the potential endogeneity of proximity, we use census data to analyze the relationship between labor force attachment and proximity using a sample of “military wives,” civilian women with husbands serving in the U.S. military. Concerns about the endogeneity of proximity are arguably less serious than those posed by the childcare-labor supply relationship. Several recent papers use proximity to mothers as an instrument for family-provided childcare (e.g., Dimova and Wolff (2008), Dimova and Wolff (forthcoming), Zamarro (2009)). Estimates based on census data support our finding that proximity has a substantial positive effect on the labor force attachment of

¹ We use “mothers” to refer to the older generation, “women” to refer to the middle generation (i.e., the adult daughters of the mothers) and “children” to refer to the youngest generation (i.e., grandchildren of the mothers). By “young children” we mean children 12 and under.

married women with young children and that the mechanism is the availability of childcare.

Using proximity as an instrument for childcare transfers from mothers or mothers-in-law, we find that married women who receive childcare transfers from their mothers or mothers-in-law are 2-5 percentage points more likely to work in the paid labor force than those who do not receive childcare transfers. These estimates are based on predicted transfer of childcare in the previous month and may underestimate the full effect of geographic proximity. The proximity of a mother or mother-in-law who can respond to irregular or unanticipated childcare needs constitutes a kind of "insurance" the importance of which may be greater than the number of actual or predicted childcare hours would suggest. Market-based childcare may be a good substitute for care provided by a grandmother when the need for childcare is regular and anticipated. But market-based childcare is less able to meet irregular or unanticipated childcare needs. Hence, the proximity of a grandmother who can pick up a sick child from school, take a child to after school sports practice, or care for a child whose parents are traveling on business may affect women's labor market choices, even if such childcare needs seldom arise.

While the IV estimates of the marginal effects of childcare from either mother or mother-in-law on the probability of work range from 1.9 to 5.6 percentage points, the reduced form estimates of the marginal effects of proximity are approximately 6 to 10 percentage points. The large difference between these estimates suggests that the effects of proximity do not operate entirely through actual or predicted childcare hours.

To allay concerns that proximity affects labor force attachment through channels other than childcare, we show that proximity has no discernable effect on the labor force behavior of married women without childcare needs: those without children and those with children over 12 years of age. Although unmarried women with children are more likely than married women with children to benefit from work-related childcare by their mothers, we do not find a relationship between proximity and labor force attachment for unmarried women. This lack of effect is consistent with a more inelastic labor supply of unmarried women with children, making them less responsive to the

availability of childcare.²

Using micro-data from the census, we find additional evidence that proximity to mothers or mothers-in-law increases the labor force attachment of married women with young children and that the likely mechanism is childcare. Because the census does not ask about proximity to mothers or mothers-in-law, we use living in one's birth state as a proxy for proximity. Because the census does not ask about childcare, we rely on estimates of the relationship between labor force attachment and birth state residence. We report three separate analyses. First, we proceed as we did with the NSFH reduced form equations, assuming proximity is exogenous and investigating the effect on the labor force attachment of married women with young children of living in her birth state or her husband's birth state. Second, we consider a sample of military wives. The military wives provide an endogeneity control because their husbands' locations are determined by the military. For the military wives, we find that proximity to both mothers and mothers-in-law increases the labor force attachment of married women with young children. Third, we consider a sample of migrants -- individuals who, five years prior to the census, were not living in either their birth state or their current state. We find that married women with young children who returned to their birth state or to their husband's birth state have higher labor force participation than women who moved to a non-birth state.

Geographical proximity of adult children and their parents has only recently garnered attention in the economic literature.³ Konrad et al. (2002) model the proximity of adult children to their parents as the outcome of a noncooperative game, but they do not consider childcare or labor supply.⁴ Rainer and Siedler (2009) develop and estimate a similar model but, unlike Konrad et al., they discuss labor market effects; they find that

² Kimmel (1998) finds that the labor supply of unmarried mothers is less responsive to childcare prices than the labor supply of married mothers.

³ Klerman and Leibowitz (1990) find a non-significant effect of the availability of relative care on the probability of returning to work within 3 months (and also within 24 months) following the birth of a child. Their analyses, however, focus on coresident grandmothers rather than grandmothers in close proximity. Declining rates of coresidence (Costa, 1999; Ruggles, 2007) and the likelihood that coresident grandmothers may themselves need care (Compton and Pollak, 2009) suggest that the focus on coresidence rather than proximity fails to capture the roles of mothers and mothers-in-law. Several recent theoretical papers consider the effect of intergenerational transfers of time on the labor force behavior of daughters. Pezzin and Schone (1999) develop a model in which the labor force participation of daughters and the provision of long-term care to mothers are jointly determined; they focus on the care of frail elderly mothers and do not consider childcare.

⁴ In their model, the eldest sibling has the first mover advantage and moves away from the parents to shift the burden of providing long-term care for elderly parents to younger siblings.

adult children without siblings are more likely to remain in their parents' locations and have worse labor market outcomes than those with siblings. They do not investigate the effect of the availability or receipt of childcare on women's labor supply.⁵

Three recent studies consider the effect of childcare by mothers (but not by mothers-in-law) on the labor force behavior of women in Europe. Using SHARE data, Dimova and Wolff (forthcoming) use a simultaneous recursive model to estimate the effect of both time and money transfers from mothers on the labor force participation of their daughters in 10 European countries.⁶ They include distance between mothers and daughters as well as mothers' demographic characteristics in their childcare equation. They find that regular (weekly or daily) transfers of childcare have a small positive effect on daughter's labor force participation, but do not affect whether their labor force participation is full-time or part-time. Using the same data and a recursive simultaneous equations model, Zamarro (2009) considers the country-specific impact of regular childcare transfers on the labor supply of both mothers and daughters. Her results suggest that regular childcare transfers affect the daughters' labor supply for Greece and the Netherlands, but are insignificant for the other 8 countries. Finally, using French data Dimova and Wolff (2008) find that daughters of first-generation immigrant women at or near retirement age are more likely to participate in the labor force if they receive regular (i.e. weekly) childcare from their mothers.

We argue that the empirical strategy used in these studies underestimates the effect of childcare availability for two reasons. First, they focus on regular childcare, ignoring the insurance aspect of childcare to meet irregular or unanticipated needs. Second, they are able to consider only childcare transfers from mothers to daughters because the data sets they use do not include information on mothers-in-law. We find that the effect of proximity on labor force attachment is strongest for those women living near both mothers (in the NSFH data) or living in the birth state of both spouses (in the census

⁵ Cardia and Ng (2003) calibrate an overlapping generations model that allows intergenerational transfers of both time and money; they show that time transfers involving childcare have important positive effects on the labor supply of the middle generation. Belan, Messe and Wolff (2009) develop and analyze an overlapping generations model with intergenerational transfers of care and show that changes in the mandatory retirement age affect the employment rates of both generations.

⁶ SHARE, the Survey of Health, Ageing and Retirement in Europe, is a large multi-country panel covering more than 45,000 individuals over the age of 50.

data). "Living near neither mother" has a strong negative effect on labor force attachment. The effect of close proximity to only her mother or only his mother is positive, but not robust across samples. In the NSFH, the effect of close proximity to only his mother is positive and significant, while the effect of close proximity to only her mother is positive but insignificant. In the census data, living in the birth state of either spouse has a significant positive effect on labor force attachment and the magnitudes are about the same. For the military wives sample, we find significant effects on labor force attachment only for couples that live in the birth states of both spouses. Thus, having data on proximity to both mothers and mothers-in-law or on the birth states of both spouses is crucial to understanding the effect of proximity on labor force attachment.

Our finding that family proximity increases the labor force attachment and employment of married women with young children has implications for policy. Our analysis suggests that policies that increase the availability of childcare to meet irregular or unanticipated child care needs, including care for sick children, might substantially increase the labor supply of married women with young children. Our analysis also suggests that increases in the retirement age which reduce the ability of the older generation to provide childcare may reduce the labor force attachment of daughters in the younger generation. Discussing recent trends in labor force participation in the U.S., Mosisa and Hipple (2006) note that while participation rates have decreased in the past decade for women aged 25 to 54, they have increased for women aged 55 and older. The behavior of these cohorts is usually analyzed separately, with little or no recognition that geographical proximity and childcare may provide a link between them.

This paper proceeds as follows. Section two describes the NSFH and uses it to analyze the relationship between childcare, proximity and women's labor force attachment. Results from IV and reduced form probit regressions on the probability of being employed as well as Tobit and selection correction models on hours of work support the hypothesis that proximity to mothers or mothers-in-law has a substantial positive effect on the labor force attachment of married women with young children, but not on that of any other demographic group. For brevity, we present only the probit results. In section three we turn to census data. Because the census does not ask about proximity to mothers or mothers-in-law, as a proxy we investigate the effect of living in

one's birth state. The results for the married women with young children and for the military wives reinforce our conclusion that proximity to mothers or mothers-in-law increases the labor force attachment of married women with young children. Our comparison of interstate migrants who return to their birth states with those who move to a non-birth state provides additional support for our conclusion. In section four we summarize our findings and conclude.

2. NSFH: Proximity and Labor Force Attachment

We use data from the first two waves of the National Survey of Families and Households (NSFH) described in Sweet and Bumpass (1996). The first wave (1987-1988) consisted of 13,007 households, and oversampled blacks, Puerto Ricans, Mexican Americans, single-parent families, families with stepchildren, cohabiting couples, and recently married couples. The second wave (1992-1994) was a five-year follow-up. Using the first and second waves of the NSFH enables us to control for recent migration (i.e., living in a different location in the second wave than in the first.).^{7, 8} The primary respondent was randomly chosen from the adults in the household, but both the respondent and the respondent's spouse or partner were asked to complete the entire survey. The data includes information on distance (in miles), health, marital status, and transfers given and received by both the respondent's mother and mother-in-law.⁹ We limit our sample to those women (respondent or spouse) who are aged 25 to 60 and whose mothers (and mothers-in-law where applicable) are Alive and Living in the United States (ALUS). Thus, we exclude individuals whose mothers or mothers-in-law are deceased or live outside the U.S.¹⁰ For our analysis, a major advantage of the NSFH is that it provides information on proximity not only to mothers but also to mothers-in-law. Although few data sets include information about family proximity, our results suggest a

⁷ The NSFH does not provide information that would enable us to control for migration prior to wave 1.

⁸ The third wave of the NSFH sample was reduced to include only households with children. Because this sample restriction limits our ability to compare across groups, we use only the first and second waves.

⁹ We use the information collected from the respondent; if this information is missing, we use the spouse's record.

¹⁰ Although the data are fifteen years old, patterns of migration and proximity appear to be quite stable. For example, the percentages of individuals living in their birth state (our proxy for proximity when using census data) has remained fairly constant over the past three decades.

high scientific payoff to collecting and analyzing information about proximity to both mothers and mothers-in-law.

2.1. Description

Most Americans live very close to their mothers. Using data from the NSFH, Compton and Pollak (2009) report that the median distance between married women and their mothers is 20 miles, with one-quarter living within 5 miles of their mother. Unmarried 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.¹¹ We define ‘close proximity’ or ‘living near’ as a distance of twenty-five miles or less.¹² Close proximity is strongly correlated with education: 46 percent of low power couples (couples in which neither spouse has a college degree) live within 25 miles of both mothers, whereas only 17 percent of power couples (couples in which both spouses have college degrees) live within 25 miles of both mothers.¹³

The NSFH provides information on time transfers between individuals and their mothers and mothers-in-law. Respondents were 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. Those with children 12 and under were asked whether they received childcare from their parents or parents-in-law while working or childcare at other times (table 1). The likelihood of time transfers is strongly associated with proximity to both mother and mother-in-law. Of married women with children living within 25 miles of their mothers, 24-27 percent received work-related childcare while 31-37 percent received non-work-related childcare from their mothers; of married women with children living within 25 miles of their mothers-in-law, 18-19 percent received work-related

¹¹ In the NSFH analysis, unmarried women include those who are never married, divorced, widowed or separated. We include cohabitators with married individuals.

¹² The results of the analyses are very similar if cutoffs of 20 miles or 30 miles are used. Unless noted otherwise, we include couples who coreside with either her mother or his mother in the ‘close’ category. Although this group are qualitatively different from those not coresiding (see Compton and Pollak, 2009), they are a small proportion of the population (2.4 percent of the sample) and sample sizes are too small to justify a separate category. If we exclude coresidents from the sample of married women, the results are indistinguishable. We treat unmarried women who coreside with their mothers as a separate category because the sample size is larger (22 percent of the sample).

¹³ We have borrowed the “power couples” terminology from Costa and Kahn (2000).

childcare and 25 percent received non-work-related childcare from their mothers-in-law. Unmarried women were slightly more likely to receive transfers of work-related childcare from her mother: 28 percent of unmarried women in close proximity to their mothers received work-related childcare and almost one-half received non-work related childcare in the past month. Those living further than 25 miles were much less likely to receive childcare: only 4.2 percent (2.7 percent) of married women with children who did not live close to either mother received work-related childcare from her (his) mother.

Employment is also correlated with proximity. Table 2 shows the labor force attachment of married and unmarried women by proximity to their mothers or mothers-in-law. For unmarried women (with and without children), there is a positive relationship between distance category (coresidence, 25 miles or less, more than 25 miles) and full-time work, but an inverted U-shaped relationship between distance category and out of the workforce (the sample size here is a concern, however). For married women, there are four categories of proximity: a couple can live close to neither mother, to his mother only, to her mother only, or to both mothers. The raw data show the importance of including both mothers and mothers-in-law when considering the relationship between proximity and labor force attachment. If we exclude information on mothers-in-law, we are in effect combining the first two categories into a single category ("not close to her mother") and the last two categories into a single category ("close to her mother"). Yet, married women, especially those with children, who live near only their mothers-in-law have a much different pattern of labor force attachment than married women who do not live near either mother. For example, restricting our attention to married women with young children, we find a substantially higher percentage working full-time when living near only their mothers-in-law (45 percent) than living near neither mother (33 percent). By recognizing four proximity categories, we are able to estimate more precisely the effect of proximity on labor force attachment.

Demographic factors correlated with close proximity are typically factors correlated with lower labor force attachment. Means and standard deviations for the married women's sample are presented in Appendix 1. Compared with women who do not live within 25 miles of either mother or mother-in-law, those who live close to both live in areas of higher unemployment, are younger, are more likely to have young

children, are less educated, have less educated mothers and spouses, are more likely to be black or Hispanic, and are less likely to live in an MSA. Yet despite these correlates of close proximity, women living in close proximity to their mothers or mothers-in-law are more likely to be working and work more hours. In the next sub-section, we show that the proximity effect observed in the raw data holds under regression analysis.

2.2. Analysis: Childcare and Labor Force Attachment

We begin by estimating the effect of predicted transfers of childcare on the labor force behavior of adult women, similar to the type of analysis performed on the European data by Dimova and Wolf (2008, forthcoming) and by Zamarro (2009). The sample is restricted to women with young children whose mothers are ALUS.¹⁴ We estimate the impact of both work-related and non-work related childcare, using the following bivariate probit model:

$$Y_{1i}^* = X_i\beta + Z_i\lambda + Y_{2i}^*\phi_2 + U_{1i} \quad (1)$$

$$Y_{2i}^* = X_i\beta + \Lambda_i\gamma_2 + Y_{1i}^*\phi_1 + U_{2i} \quad (2)$$

$$\begin{aligned} Y_{ki} &= 1 \text{ if } Y_{ki}^* > 0 \\ Y_{ki} &= 0 \text{ if } Y_{ki}^* \leq 0 \end{aligned}, k = 1, 2$$

where Y_{1i} is an observed dichotomous variable equal to 1 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 receives childcare (either work related or non-work related) from her mother or her mother-in-law (i.e., if the latent variable $Y_{2i}^* > 0$). The vector X includes exogenous control variables common to both regressions (age, age squared, whether husband works and his hours of work, whether self or husband currently has medical problems, race (black, Hispanic, white (omitted)), education categories (both spouses have college degrees, only she has a college degree, only he has a college degree, neither has a college degree (omitted)), age of youngest child). The vector Z includes the instruments for work (region (Midwest, South, West, Northeast (omitted)), average

¹⁴ Women coresiding with their mothers are excluded from the childcare regression samples as transfers between coresidents are not included in the data.

commuting time in the county (to account for place-to-place differences in the amount of time it takes to travel), whether residing in an MSA, 1990 county level unemployment rate and whether the respondent lived in a different city in the first wave of the data). The vector Λ includes the instruments for childcare (age categories of mother(s) (less than 60, 60-69, 70 and over (omitted)), whether mother(s) are in poor health, whether mother(s) are married and whether mother(s) live in close proximity). Error terms are assumed to be iid normal. The variables included in Λ are assumed to affect the likelihood of childcare, but not labor market behavior directly, while variables included in Z are assumed to affect the likelihood of working, but not childcare. The model is estimated using the two-step procedure outlined in Maddala (1983) and Greene (1998).¹⁵

The parameter of interest is φ_2 , the coefficient on predicted childcare in equation (1). This is presented in Table 3.¹⁶ We analyze the relationship between proximity and childcare using three definitions of childcare – work-related childcare, non-work-related childcare, and either type of childcare. In the top panel, we show the results for unmarried women. For this sample, transfers of childcare have no discernable effect on the probability of work. For the sample of married women, we first estimate the effect of transfers to and from her mother (ignoring mother-in-law information). In these regressions, the variables in Λ include only those that pertain to her mother, including whether the woman lives in close proximity to her mother. The results show positive, but insignificant coefficients on predicted childcare. The bottom panel adds the information on mother-in-law.¹⁷ Here, the variables in Λ include the age, marital status and health of both mothers and the proximity categories are close proximity to his mother, close proximity to her mother and close proximity to both. The results show that married women who receive transfers of childcare from either their mother or mother-in-law are more likely to work in the paid labor force than those who do not receive such transfers. Marginal effects are significant, ranging from 4.5 to 5.6 percentage points, depending on

¹⁵ While this procedure gives consistent estimators, it is not efficient. The econometrics software used for this analysis does not allow for a bivariate probit estimator with double endogenous variables. Standard errors are estimated using a bootstrap procedure.

¹⁶ In all regressions, coefficients are presented with standard errors in parentheses. Marginal effects on the predicted probability are shown in italics.

¹⁷ There is no econometric procedure to allow for a two-step IV approach with a multinomial endogenous variable (childcare from her mother only, from his mother only, from both).

the definition of childcare. The effect is significant for both work-related and non-work related childcare.¹⁸ We interpret the significance of non-work-related transfers as suggesting an "insurance" effect of proximity – the availability of family members to provide childcare in unanticipated situations alters the labor supply of married women.

We next investigate the reduced form relationship between proximity to mothers and mothers-in-law and the labor force behavior of women, maintaining the assumption that proximity is exogenous. We highlight the reduced form analysis for two reasons. First, the childcare variable in the NSFH indicates only whether a woman receives childcare from her mother or mother-in-law in the previous month. The IV analysis will underestimate the insurance aspect of childcare if the mother or mother-in-law is available for childcare, but no transfers were required during the survey month. Second, applying the reduced form equation to demographic groups without childcare needs allows us to test our hypothesis that the availability of childcare is the mechanism that links proximity and labor force attachment.

Using the notation from above, we estimate

$$Y_{li}^* = X_i\beta + Z_i\lambda + \Lambda_i\gamma + U_i \quad (3)$$

as a reduced form probit regression on employment. Tobit regressions are also estimated, with Y_{li} denoting hours of work.

We now expand our sample to include all women, not only those with children under the age of 12. For married women, we focus on the effect of three categorical variables: close proximity (i.e., within 25 miles) of mothers only, of mothers-in-law only, and of both mothers and mothers-in-law. For unmarried women, we consider the effect of coresidence and of close proximity to mothers. To simplify the interpretation, we limit the sample to those with mothers (and mothers-in-law for the married sample) ALUS.¹⁹ Control variables indicating the presence of children (children 12 and under, children

¹⁸ The categories of childcare (columns A and B) are not mutually exclusive. For unmarried women, 63 percent of those who received work-related childcare also received non-work related childcare; 40 percent of those who received non-work related childcare also received work-related childcare. For married women, 77 percent of those who received work-related childcare from either mother or mother-in-law also received non-work related childcare; 58 percent of those who received non-work related childcare from either mother or mother-in-law also received work related childcare.

¹⁹ By excluding those whose mothers are not ALUS, our sample under-represents migrants to the U.S. and those whose mothers die young.

older than 12 in the household, children outside the household, no children (omitted)) are added to vector X .

Probit results are shown in table 4. In columns (1) and (3) we estimate the effect of living near own mother, ignoring the location of mother-in-law. As with the IV regressions, we find no significant effect of proximity when the comparison group contains both those living near neither mother and those living near their mother-in-law only. When mother-in-law information is added in columns (2) and (4), the comparison group becomes those living away from both mothers and we now see a statistically significant and relatively strong effect of proximity to mothers-in-law and to both mothers. For unmarried women with young children, we find no effect of proximity, and a negative effect of coresidence, on work force attachment. We replicated these regressions for married and unmarried men with young children and found no significant effect of close proximity on men's labor force attachment.

In table 5 we consider different subsamples of married women to determine the subgroups for which the relationship between proximity and labor supply is strongest.²⁰ The first column presents results from the regression in table 4, column 2. In columns (2) – (4), we report the regressions separately by presence of child categories: column (2) includes only those with young children; column (3) includes only mothers without young children; and column (4) includes only non-mothers.²¹ Proximity is significant only for those with young children and the effect is large; close proximity to mother-in-law or to both mother and mother-in-law increases the predicted probability of employment by 10 percentage points. The coefficient on close proximity to only her mother is positive, but insignificant.

In columns (5) and (6) we limit the sample to those whose mothers or mothers-in-law are in poor health and thus are more likely to need care themselves and less likely to provide care for their grandchildren. We find no effect of proximity on the labor force attachment of these women. The absence of an effect of proximity on the labor supply of

²⁰ We found similar results when we included interaction terms between proximity and children or health of mother or mother-in-law in the regression.

²¹ The results are qualitatively the same if we consider those with children under the age of 6. We chose the 12 year old cut-off for two reasons. First, this cut-off corresponds to the childcare transfer questions – only those with children 12 and under were asked about childcare. Second, our hypothesis is that the availability of family to aid with irregular or unanticipated childcare needs is important for labor market decisions. This type of childcare may be especially important when children are school-age.

women whose mothers or mothers-in-law are in poor health is further evidence that the availability of childcare is probably the mechanism through which proximity affects labor supply.

Proximity to mother-in-law and proximity to both mothers have similar effects: proximity to only one's own mother has a smaller and statistically insignificant effect. This result is unexpected, as women are more likely to receive childcare transfers from their mothers than from their mothers-in-law. In section 5, using census data and birth state residence as a proxy for proximity, we find that proximity to mother and proximity to mother-in-law are statistically significant and that the effect sizes are about the same.

The effect of nearby siblings suggests that strategic behavior may explain why proximity to mother-in-law has a stronger estimated effect than proximity to mother. Consider first the mother-in-law. Because mothers-in-law are more likely to provide childcare for the children of their own daughters than for those of their daughters-in-law, the presence of his siblings may reduce mothers-in-law willingness to provide childcare. 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. Because altruistic motives for providing eldercare are presumably weaker among daughters-in-law than daughters, mothers-in-law may be more willing to provide childcare to daughters-in-law in the hope of increasing the probability of receiving eldercare in the future. In the first column we find a positive effect of living close to one's mother-in-law but a negative effect of close proximity to husband's siblings.²² The negative effect of nearby siblings is also seen for the subgroup with young children, although these coefficients just fail to meet standard levels of significance. Strategic behavior may also explain the insignificant effect of close proximity to only her mother. Compared with couples residing in close proximity to both mothers, those residing in close proximity to only her mother may be more likely to move away in the future, thus reducing the incentives of mothers to provide childcare. The close proximity of a woman's own siblings has a negative but non-significant effect on the labor force attachment of women with young children, and a positive effect on the labor force attachment of those without children. These results suggest a relationship

²² We do not know whether siblings in close proximity are brothers or sisters.

between labor force attachment and sibling competition in care transfers, but we do not have sufficient data to investigate this possibility more thoroughly.

The results on hours of work from Tobit regressions and models using a Heckman correction for sample selection indicate that the effect of proximity is primarily on the extensive margin (i.e., whether the woman works or not) rather than on the intensive margin (i.e., the number of hours worked). These results (not shown) are consistent with the probit results: we find proximity effects only for married women with young children.

Informal job-search networks are unlikely to explain the positive relationship between proximity and labor force attachment.²³ It is true that women who live close to their mothers or mothers-in-law are likely to live close to other family members and to friends, and thus to belong to larger informal networks that are important for job search. We discount job-search networks as an explanation of our empirical results because we find an effect of proximity only for married women with young children; we do not find it for men, for unmarried women, or for married women without young children. Hence, the informal job search network explanation is not supported in the data.

Overall, our findings from the NSFH indicate that proximity to mothers or mothers-in-law has a large positive effect on the labor force attachment of married women with young children. The IV analysis suggest that the mechanism through which proximity and labor force attachment are linked is childcare; the lack of a proximity effect for married women without childcare needs reinforces this result.

Two caveats are required. The first is sample size: perhaps the insignificant results for married women with older children and for married women with no children are due to the small sub-samples. We address this concern in section 3 by using census data. The second is the potential endogeneity of proximity. Endogeneity problems arise if women who have preferences for both children and labor force attachment are more likely to reside near family, compared with women who have preferences for one or the other.²⁴ Unfortunately, we have no convincing way to deal with this endogeneity problem

²³ Tied-mover effects are also unlikely to explain the relationship; we discuss migration and tied-mover effects in section 3.2.

²⁴ Endogeneity problems also arise if marriage market choices reflect underlying preferences for work/children combinations.

using the NSFH data.²⁵ Nevertheless, our empirical results from the NSFH provide strong evidence that proximity is related to the labor force attachment of married women with young children, and that the mechanism is the availability of childcare. Census data address the endogeneity concerns and provide additional evidence.

3. Census Data: Birth State and Labor Force Attachment

Although the U.S. Census does not ask respondents the distance to their mothers, it does ask whether the respondent resides in his or her birth state. We use this variable as a proxy for close proximity. Data from the Panel Survey of Income Dynamics (PSID) provides some support for the validity of this proxy.²⁶ The PSID reports grouped distance to mother in one year (1988) and the “State where the Head (Spouse) grew up.”²⁷ Although the state where one grows up need not coincide with birth state, there is a strong link between proximity and residing in one's childhood state: in the PSID, more than 90 percent of heads currently living in their childhood state are living in the same state as their mothers; over half live within 10 miles, and less than 15 percent live more than 100 miles away. On the other hand, of those heads not living in their childhood state, only 27 percent currently live in the same state as their mothers; 16 percent live within 10 miles, and more than 70 percent live more than 100 miles away.

Using census data we estimate the effect of birth state residence on the probability of employment and labor force participation as well as on usual weekly hours. More specifically, 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). For married women, we define three mutually exclusive indicator

²⁵ We attempted a bivariate probit model as outlined above in equations (1) and (2), but defining Y_{2i} as an observed dichotomous variable equal to 1 if the daughter lives in close proximity to his mother or to her mother (i.e., if the latent variable $Y_{2i}^* > 0$). The instruments included were mother's marital status and indicators for only and eldest child. We do not present the results for two reasons. First, the results are insignificant and sensitive to control inclusion, which may reflect the use of a binary proximity category that ignores the location of mothers-in-law. Second, although mother's marital status and birth order are strong predictors of proximity in previous work (e.g., Konrad et al. (2002), Rainer and Siedler (2009), Compton and Pollak (2009)), we found them to be borderline weak instruments, especially in sub-samples.

²⁶ The NSFH does not include state of birth.

²⁷ The PSID did not ask state of birth until 1993, and then only to new heads or spouses. The distance groups in the PSID are (1) less than one mile; (2) 1 to 10 miles; (3) 11 to 100 miles; and (4) more than 100 miles.

variables: (1) whether the couple lives in the birth state of both spouses; (2) whether the couple lives in only her birth state and (3) whether the couple lives in only his birth state. To control for migration effects, we include a dummy variable 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 a large birth state is likely to be a weaker proxy for proximity to mother than living in a small birth state (e.g., Rhode Island, Delaware). In contrast, those living in small birth states, even if they have moved within the state, are more likely to live in close proximity to mother. Because the census provides no information on mothers who do not reside with their adult children, we limit the sample to those aged 25-45 (in the NSFH analysis we used those aged 25-60) to increase the likelihood that the mothers of those in our census sample are still alive.

We replicate the analysis using a large sample of military wives – civilian women with husbands serving in the U.S. military.²⁸ Our military wives sample includes 14,833 married women, of whom 10.2 percent live in only her birth state, 5.1 percent live in only his birth state, and 8.7 percent live in the birth state of both spouses. The military wives provide a control for endogeneity because their husbands' locations are determined by the military.²⁹

3.1. Interaction of Birth State and Young Children

We consider the impact of birth state residence for three samples – married women, military wives, and never-married women.³⁰ Table 6 presents summary statistics for the samples. The data indicate that, for married women with young children, there is

²⁸ Excluded from the sample are those for whom spouse is absent. In particular, this excludes military wives whose husbands are serving overseas. To increase the size of the military wives sample, we have increased the age range to 18-45. We find similar results when we omit the 18-23 age category.

²⁹ The probability that they live near only her mother is twice the probability of living near his mother, presumably because it is the husbands' locations that are determined by the military. In particular, if the wife met her husband while he was in the military and stationed in her birth state, then the couple is more likely to live near her mother than near his mother. Unfortunately, the census does not ask how long couples have been married.

³⁰ In the NSFH sample we included all unmarried women with controls for divorced, separated and widowed. With the large sample size available in the IPUMS data, we are able to consider separately those previously married and those never married. The results for those previously married are more difficult to interpret since the women may still reside near their mothers-in-law and receive childcare from them.

an increasing attachment to the work force as we move from residing in the birth state of neither spouse to residing in the birth state of both spouses. We find no discernable pattern for married women with only older children or no children. We find a similar pattern for military wives with young children, although the patterns for military wives with older or no children are less clear. For never married women with young children, we find a negative relationship between birth state residence and labor force attachment.

In table 7 we present regressions analogous to equation (3).³¹ That is, we estimate the effect of birth state residence (our proxy for family proximity) on labor force attachment – whether the woman is currently in the labor force and whether she is currently employed.³² For married women with no young children, we find a small negative effect of birth state residence, but for married women with young children, we find a positive effect. Proximity has a small, negative effect on the labor force attachment of never married women regardless of whether they have young children. The marginal effects are smaller in the census than in the NSFH sample but the effect remains substantial: birth state residence increases the probability of labor force participation and employment of married women with young children by 2.6 – 3.9 percentage points. In table 8, we expand the birth state categories to account for residence in his and her birth state separately. Results for the full sample of married women are consistent – a small, negative effect of living in the birth state of one or both spouses for those without young children, but a strong positive effect of living in the birth state of either or both spouses for those with young children.

The results from the military sample are weaker: the results in table 7 indicate a positive effect of birth state residence for those with young children, although the significance levels are relatively low.³³ In table 8, with expanded birth state categories, the interaction between children and birth state residence is positive and significant only for those residing in the birth state of both spouses. We expect weaker results in the military wives sample for two reasons. First, birth state residence is a weaker proxy for

³¹ Due to computing demand, a random 10 percent sample was drawn for the regressions.

³² Regression results from Tobit and Heckman corrected models on usual weekly hours again suggest that the impact of proximity is on the extensive margin. The results of these regressions are not presented but are consistent with the probit results.

³³ For the labor force and employment participation probits, the coefficients on the interaction term are significant at the 89 percent and 78 percent confidence levels, respectively.

family proximity when the husband is in the military because military personnel assigned to their birth states are likely to be further from their mothers than civilians who live in their birth states. Second, the strategic motivation for mothers and mothers-in-law to provide childcare in anticipation of reciprocity when they are elderly and disabled is reduced because daughters and daughters-in-law are likely to move when their husbands are assigned to a different location.

3.2. Birth State and Migration

Although the "tied mover" hypothesis described by Sjaastad (1962) Mincer (1978), Lichter, (1983) and Greenwood (1985) does not explain our results, our results imply the need to disentangle proximity effects and tied mover effects. The tied mover hypothesis postulates that the costs of migration are higher if both spouses are attached to the labor force, and concludes that single-earner couples are more likely to migrate than two-earner couples. The tied mover hypothesis implies that secondary earners (read: married women) who migrate will have less labor force attachment in the short run than secondary earners who do not migrate. Five points deserve attention. First, the tied mover hypothesis, as its name suggests, applies only to those who moved as a couple: our analysis focuses on the proximity of a couple to his mother or her mother, regardless of whether they moved as a couple or as unmarried individuals.^{34,35} Second, we find a positive effect of proximity only for married women with young children, while the tied mover hypothesis applies to all secondary earners who migrated as part a couple. Third, we include controls for recent migration in all regressions. Although this does not capture long-run effects of migration, a number of studies indicate that the disruptions to wives' labor force participation are relatively short-lived (e.g., Clark and Withers (2002), LeClere and McLaughlin (1997), Marr and Millerd (1988), Spitze (1984)). Fourth, for

³⁴ The census does not provide information on whether they moved as unmarried individuals or as a couple. Many migrants are never married individuals. The 2001 Current Population Survey data show that while never married individuals comprise 28 percent of the population over the age of 15, 40 percent of inter-county migrants and 41 percent of inter-state migrants are never married. (Calculations by authors from the 2001 Current Population Survey data found

<http://www.census.gov/population/www/socdemo/migrate/cps2001.html>)

³⁵ The migration of unmarried individuals, especially unmarried women, is driven by both marriage market and labor market considerations. For interesting discussions, see Edlund (2005) and Gautier, Svarer and Teulings (2010).

married women with young children, we find a positive effect of close proximity to mothers-in-law only. Because women living near their mothers-in-law only are more likely to be tied movers than those living near their mothers only, the tied mover hypothesis would predict a more negative effect of close proximity to mothers-in-law only. Finally, using census data, we find that for married women with young children, the effect of moving back to their birth state has a less negative effect on labor force participation than moving elsewhere.

In table 9 we show the employment and labor force attachment rates for migrants and non-migrants. We limit our sample of migrants to those who were not living in their birth state five years earlier, because we want to distinguish between the labor force attachment of those who returned to their birth states (return migrants) and those who moved to a state other than their birth state (onward migrants).³⁶ For married women with young children, non-migrants have higher labor force attachment rates and higher employment rates than migrants, which is consistent with the tied-mover hypothesis. Within the group of migrants, however, the participation and employment rates of married women with young children who return to their birth state are 5.5 percentage points higher than that of their counterparts who migrate to another state. For the other samples – unmarried women, married women with no children, and married women with only older children – return migrants have lower labor force participation and employment rates than onward migrants.

In table 10 we use regression analysis to further investigate these migration/destination effects. We present the results for probit regressions on labor force participation of women who did not reside in their birth state five years prior (regressions on employment and hours yield similar results). The results confirm the patterns observed in the raw data: labor force participation of married women is negatively related to migration, but destination is also important. For married women with young children, the negative effect of migration on labor force participation is substantially less for those who move into their birth state (i.e., return migrants) than for those who move into another state (i.e., onward migrants). For married women with no children or those with

³⁶ We cannot identify individuals who moved between states within the five year window and then returned, nor can we identify those who moved within state.

only older children, the tied-mover effect is smaller and there is no discernable difference between the two migration coefficients: the effect of returning to one's birth state is the same as the effect of moving elsewhere. These results imply that the tied mover hypothesis cannot explain the proximity effects that we have found. They also imply that tied mover effects and proximity effects interact: the effect of migration on labor force attachment depends on the presence or absence of young children and on the destination of the migrant.

4. Conclusion

Using two large U.S. data sets, the NSFH and the census, we find that living close to mothers or mothers-in-law has a strong positive effect on the labor force attachment of married women with young children. More specifically, we find that proximity increases the labor force attachment of married women with young children by 4-10 percentage points. We argue that the mechanism through which proximity affects labor supply is the availability of childcare. We interpret availability broadly enough to include not only regular, scheduled childcare but also the "insurance" provided by the proximity of mothers or mothers-in-law for irregular or unanticipated childcare needs.

Two endogeneity issues require attention. The first involves labor force participation and childcare, and would arise even if proximity were exogenous. We address this by using an IV approach, with proximity serving as an instrument for childcare. The second is the potential endogeneity of proximity. This endogeneity is arguably less serious than the first, but more difficult to address. We address it by analyzing a subsample of military wives – civilian women with husbands serving in the U.S. military – arguing that, compared with the general population, their locations are more likely to be exogenous because their husbands' locations are determined by the military.

Analysis of NSFH data suggests a strong relationship between proximity to mother or mother-in-law and labor force attachment of married women with young children. Using close proximity as an instrument for childcare hours, we find that both work-related and non-work-related childcare by mothers or mothers-in-law increases the labor supply of married women. We interpret the significance of non-work-related childcare as suggesting the insurance effect of proximity – the availability of family members to

provide irregular or unanticipated childcare increases the labor supply of married women with young children.

We then turn to reduced form estimates of the relationship between labor supply and proximity. We do this for two reasons. First, reduced form estimates for demographic groups that do not benefit from the availability of childcare (e.g. married women without young children) provide further evidence that proximity affects labor supply through the availability of childcare. Second, the IV estimates using predicted childcare will underestimate the insurance effect of close proximity if there are women for whom childcare was available but not needed in the previous month.

We find that close proximity itself has a substantial, robust, and statistically significant effect on labor force attachment for married women with children. However, we find no proximity effect for those demographic groups that would not benefit from the availability of childcare: married women whose mothers or mothers-in-law are in poor health, and women with only older children or no children. We find no proximity effect for unmarried women with children, a result we attribute to the inelastic labor supply of unmarried women with children which makes them unresponsive to the availability of childcare.

Census data provides further evidence. Using living in birth state as a proxy for proximity to mother, we find that for married women with young children, birth state residence increases the probability of labor force participation and employment by 2.6 - 6.1 percentage points. For married women without children and for never-married women, we find a small, negative effect of living in the birth state of one or both spouses. To control for the endogeneity of proximity, we consider the effects of proximity on labor force attachment for a sample of military wives. We find that for military wives with young children, living in the birth state of both spouses has a positive effect on labor force attachment; we find no effect of birth state residence on military wives with young children living only in his birth state or only in her birth state, and we find no effect of birth state residence on military wives without young children.

This constellation of findings cannot be explained by either the network job search hypothesis or by the tied mover hypothesis -- the proximity effects are too tightly concentrated in a single demographic group -- married women with young children.

Because we have neither a natural experiment nor a structural model of proximity, we cannot conclusively rule out selection. The military wives sample is as close as we come to a natural experiment, but a skeptic could fairly point out that men self-select into the military and women self-select into becoming and remaining military wives. Our interstate movers sample is similarly open to the objection that individuals self-select into return migration to his or her birth state.

The effects of close proximity on the labor supply of married women with young children are substantial and robust. We find clear and convincing evidence that proximity affects the labor force attachment of married women with young children, and that the underlying mechanism is the availability of mothers or mothers-in-law to meet childcare needs.

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Table 1: Childcare Received by Proximity

	Work Related Childcare	Not Work Related Childcare	Sample Size
MARRIED WOMEN			
From Her Mother			
Near Neither Mother	4.2	8.6	924
Near Only Hers	23.7	31.1	506
Near Only His	7.0	13.4	497
Near Both	26.8	36.8	1125
From His Mother			
Near Neither Mother	2.7	7.4	924
Near Only Hers	2.9	5.7	506
Near Only His	19.4	25.4	497
Near Both	18.4	25.0	1125
UNMARRIED WOMEN			
From Her Mother			
Not Near Mother	13.5	14.7	144
Near Mother	28.6	47.7	274

NSFH Wave II. Weighted percentages. Sample includes all women with children 12 years and under, not coresiding with their mothers, over the age of 24, with mother and mother-in-law alive and living in the United States (ALUS). Respondents are asked whether they received work-related or non-work-related childcare in the past 12 months, and if yes, from whom. Work status is current. "Near" is 25 miles or less.

Table 2: Married Women's Labor Force Attachment by Proximity

	Does not live near mother	Lives near mother	Coresides with mother	
Non Married Women				
No Children 12 and under				
Does not Work	19.9	24.2	19.1	
Works Part-time	16.8	15.6	21.6	
Works Full-Time	63.3	60.3	59.3	
Sample Size	303	348	92	
Children 12 and under				
Does not Work	33.5	41.8	30.4	
Works Part-time	16.0	9.6	23.4	
Works Full-Time	50.5	48.5	35.2	
Sample Size	144	274	46	
	Lives near neither mother	Lives near his mother only	Lives near her mother only	Lives near both mothers
Married Women				
No Children 12 and under				
Does not Work	23.3	28.6	22.0	20.8
Works Part-time	17.4	17.1	16.4	16.0
Works Full-Time	59.4	54.3	61.6	63.3
Sample Size	351	216	221	376
Children 12 and under				
Does not Work	43.9	33.7	41.1	35.9
Works Part-time	23.2	20.7	18.5	22.4
Works Full-Time	32.9	45.7	40.4	41.8
Sample Size	498	314	317	759

NSFH Wave II. Weighted percentages. Sample includes all women aged 25-60 whose mother is ALUS. The sample of married women includes only those for whom both mothers are ALUS. "Near" is 25 miles or less.

**Table 3: Bivariate Probit Model:
The Impact of Childcare on Positive Hours of Work**

	(A) Received work-related childcare	(B) Received non-work related childcare	(C) Received either work- related or non- work related childcare
Unmarried women with children 12 and under (367 observations)			
<u>Childcare from her mother</u>			
Coefficient	0.068	-0.019	-0.007
Bootstrapped standard error	(0.182)	(0.173)	(0.140)
Marginal effect	<i>0.024</i>	<i>-0.007</i>	<i>-0.002</i>
Confidence interval (95%)	(-0.318, 0.334)	(-0.155, 0.312)	(-0.322, 0.266)
Bootstrapped Wald coef	1.287	-0.133	-0.055
Married women with children 12 and under (1567 observations)			
<u>Childcare from her mother</u>			
Coefficient	0.048	0.056	0.052
Bootstrapped standard error	(0.059)	(0.059)	(0.050)
Marginal effect	<i>0.019</i>	<i>0.021</i>	<i>0.019</i>
Confidence interval (95%)	(-0.060, 0.170)	(-0.049, 0.179)	(-0.038, 0.155)
Bootstrapped Wald coef	0.761	0.912	0.954
<u>Childcare from either mother</u>			
Coefficient	0.149	0.237	0.120
Bootstrapped standard error	(0.064)	(0.201)	(0.579)
Marginal effect	<i>0.056</i>	<i>0.050</i>	<i>0.045</i>
Confidence interval (95%)	(0.024, 0.306)	(-0.011, 0.707)	(0.028, 0.255)
Bootstrapped Wald coef	2.233	2.805	3.090

NSFH Wave II. The sample includes all married and unmarried women, aged 25-60 inclusive, with children 12 and under, for whom both mother (and mother-in-law if applicable) are ALUS.

Table 4: Probit and Tobit Regression Results

	Married Women				Unmarried Women	
	Probit: Positive Hours of Work		Tobit: Usual Weekly Hours of Work		Probit: Positive Hours of Work	Tobit: Usual Weekly Hours of Work
	(1)	(2)	(3)	(4)	(5)	(6)
Coreside with Mother	---	---	---	---	-0.228* (0.120) <i>-0.073</i>	-4.103* (2.203)
Lives Near Own Mother	0.070 (0.070) ---		0.724 (1.585)		-0.096 (0.106) ---	-2.013 (1.321)
Lives Near Own Mother Only		0.036 (0.093) ---		0.531 (2.005)		
Lives Near Spouse's Mother Only		0.154 (0.095) <i>0.053</i>		3.778* (1.994)		
Lives Near Both Mothers		0.231*** (0.086) <i>0.081</i>		4.006** (1.954)		
Pr(Y=1 X)	0.683	0.683			0.770	
Y (fitted values)			19.32	19.32		28.14
Observations	2524	2524	2524	2524	1637	1637
LRchi2 (DF)	422.0 (29)	724.0 (37)	653.8 (29)	741.8 (37)	190.8 (24)	243.0 (24)
Pseudo R2	0.070	0.075	0.014	0.015	0.081	0.013

NSFH Wave II. Coefficients are presented, with bootstrapped standard errors in parentheses. Marginal effects are in italics, presented if the coefficient is significant at the 80 percent confidence level. The sample includes all individuals in the marriage category, aged 25-60 inclusive, for whom both mother (and mother-in-law if applicable) are ALUS. The unmarried sample includes all individuals who are currently divorced, separated, widowed or never married. Control variables included in the regressions, but not presented here for space considerations include age, age squared, whether spouse works and his/her hours of work, whether self or spouse currently has medical problems, race (Black, Hispanic, White (omitted)), education categories (both spouses have college degrees, only she has a college degree, only he has a college degree, neither has a college degree (omitted)), children 12 and under present in the household, only children over 12 present in the household, children outside the household, whether mother has a college degree, region (Midwest, South, West, Northeast (omitted)), average commuting time in the county, whether residing in an MSA, 1990 county level unemployment rate, whether coresides with mother or mother-in-law, age categories of mother(s) (less than 60, 60-69, 70 and over (omitted)), whether mother (or mother-in-law) is in poor health, whether siblings live within 25 miles.

Table 5: Probit Regressions, Dependent Variable: Positive Hours of Work
Sample: Married Women, with both mother and mother-in-law ALUS

	All	Children 12 and under in household	Mothers without young children in household	Non- Mothers	Her mother in poor health	His mother in poor health
	(1)	(2)	(3)	(4)	(5)	(6)
Lives near her mother only	0.036 (0.093) ---	0.121 (0.112) ---	-0.040 (0.231) ---	-0.076 (0.321) ---	-0.342 (0.297) ---	0.081 (0.309) ---
Lives near his mother only	0.154 (0.095) <i>0.053</i>	0.292*** (0.106) <i>0.109</i>	-0.219 (0.206) ---	0.310 (0.348) ---	-0.145 (0.387) ---	0.004 (0.316) ---
Lives near both mothers	0.231*** (0.086) <i>0.081</i>	0.282** (0.113) <i>0.107</i>	0.118 (0.234) ---	0.142 (0.346) ---	0.106 (0.344) ---	0.077 (0.372) ---
Children 12 and under	-0.552*** (0.080) <i>-0.188</i>				-0.570** (0.277) <i>-0.184</i>	-0.590*** (0.221) <i>-0.192</i>
Her siblings within 25 miles	0.045 (0.071) ---	-0.030 (0.088) ---	0.055 (0.165) ---	0.570** (0.255) <i>0.137</i>	0.092 (0.307) ---	-0.006 (0.240) ---
His siblings within 25 miles	-0.135** (0.066) <i>-0.048</i>	-0.120 (0.094) <i>-0.046</i>	-0.057 (0.150) ---	-0.321 (0.216) <i>-0.082</i>	-0.138 (0.252) ---	0.207 (0.316) ---
Pr(Y=1 X)	0.683	0.606	0.755	0.833	0.717	0.709
Observations	2,524	1,571	592	359	319	287
Pseudo R2	0.075	0.053	0.133	0.157	0.155	0.182

NSFH Wave II. Coefficients are presented, with standard errors in parentheses. Marginal effects on the predicted probability are italicized and listed for those coefficients that are statistically significant at the 80 percent confidence level. The sample includes all individuals in the marriage category, aged 25-60 inclusive, for whom both mother are ALUS. Full control variables are included in all regressions, see footnote from table 4 for the list of controls.

Table 6: Summary Statistics for Three U.S. Census Samples.

	Married			Military Wives			Never Married		
	With Children 12 and under	With Only Older Children	No Children in the Household	With Children 12 and under	With Only Older Children	No Children in the Household	With Children 12 and under	With Only Older Children	No Children in the Household
Sample Size	675,850	172,114	204,058	10,578	1,120	3,135	73,813	16,336	226,000
In Birth State	63.84%	66.96%	59.94%	18.95%	20.54%	19.40%	75.61%	74.54%	71.49%
In Only Her Birth State	15.44%	14.11%	15.69%	10.24%	9.29%	10.85%			
In Only His Birth State	12.86%	12.61%	13.29%	5.08%	5.71%	5.39%			
In Both Birth States	48.40%	52.85%	44.25%	8.71%	11.25%	8.55%			
In the Labor Force									
Not Residing in Birth State	0.64	0.79	0.85	0.53	0.75	0.79	0.78	0.77	0.87
Residing in His Birth State	0.70	0.80	0.85	0.57	0.80	0.85			
Residing in Her Birth State	0.69	0.80	0.85	0.60	0.81	0.84	0.74	0.72	0.81
Residing in Both Birth State	0.71	0.80	0.83	0.62	0.83	0.79			
Employed									
Not Residing in Birth State	0.62	0.76	0.82	0.49	0.71	0.72	0.70	0.70	0.83
Residing in His Birth State	0.68	0.78	0.82	0.54	0.78	0.78			
Residing in Her Birth State	0.66	0.77	0.83	0.56	0.79	0.76	0.65	0.65	0.76
Residing in Both Birth State	0.68	0.78	0.81	0.59	0.81	0.75			
Usual Weekly Hours									
Not Residing in Birth State	25.13	31.6	37.2	22.50	30.34	34.59	32.44	32.89	37.76
Residing in His Birth State	27.08	32.0	36.3	24.11	30.25	34.96			
Residing in Her Birth State	26.73	31.9	36.5	25.36	29.32	33.81	30.45	29.90	33.82
Residing in Both Birth State	26.91	31.4	35.1	25.55	31.93	34.28			

U.S. Census 2000. The samples includes all married and single never married women aged 25-45, born in the U.S., non-students. The military wives sample includes all women aged 18-45, non-students, born in the U.S. whose husbands are employed in the U.S. military.

Table 7: Probit Regressions: Impact of Birth State on Labor Force Attachment of Married Women, Military Wives.

	MARRIED WOMEN		MILITARY WIVES		SINGLE NEVER MARRIED WOMEN	
	In Labor Force	Employed	In Labor Force	Employed	In Labor Force	Employed
	(1)	(2)	(3)	(4)	(5)	(6)
Living in birth state	-0.058*** (0.012) <i>-0.008</i>	-0.052*** (0.012) <i>-0.009</i>	-0.058 (0.059) ---	-0.026 (0.026) ---	-0.039** (0.017) <i>-0.008</i>	-0.041** (0.016) <i>-0.014</i>
Children 12 and under	0.615*** (0.012) <i>-0.159</i>	-0.570*** (0.012) <i>-0.155</i>	-0.827*** (0.033) <i>-0.277</i>	-0.739*** (0.032) <i>-0.266</i>	0.012 (0.028) <i>-0.008**</i>	-0.056** (0.027) <i>-0.011</i>
Birth state X Children 12 and under	0.128*** (0.014) <i>0.039</i>	0.122*** (0.014) <i>0.039</i>	0.990 (0.066) <i>0.032</i>	0.070 (0.064) <i>0.026</i>	0.030 (0.032) ---	0.013 (0.030) ---
Prob(Y=1 X)	0.751	0.728	0.633	0.582	0.841	
Observations	210004	210004	14833	14833	63182	63182
LRchi2 (DF)	17887.84 (33)	18428.96 (33)	1955.10 (33)	1968.20 (33)	9035.17 (28)	10939.58 (28)
Pseudo R2	0.074	0.073	0.099	0.097	0.146	0.155

U.S. Census 2000. Coefficients presented with standard error in parentheses and marginal effect on the predicted probability in parentheses. The sample includes all married and never married women aged 25-45, born in the U.S., non-students. The regressions use a random 10 percent sample. The military wives sample includes all women aged 18-45, non-students, born in the U.S. whose husbands are employed in the U.S. military. The full set of controls are included in each regression. These include age, age squared, children (children 12 and under, only children over 12 in the household, no children in the household (omitted)), education (less than high school, high school diploma (omitted), more than high school, bachelor's degree, more than bachelor's degree), spouse education (groups same), disability, spouse disability, race (Black, Hispanic, white (omitted)), rented accommodations, whether in a metropolitan area, total income of spouse, whether in different state five years prior, size of current state (square miles), U.S. region.

Table 8: Probit Regressions: Impact of Birth State on Labor Force Attachment of Married Women, Military Wives.

	MARRIED WOMEN		MILITARY WIVES	
	In Labor Force	Employed	In Labor Force	Employed
	(1)	(2)	(3)	(4)
Living in only her birth state	-0.045** (0.019) <i>-0.012</i>	-0.050*** (0.018) <i>-0.011</i>	0.023 (0.077) ---	0.020 (0.783) ---
Living in only his birth state	-0.067*** (0.019) <i>-0.011</i>	-0.048** (0.019) <i>-0.014</i>	0.080 (0.104) ---	0.036 (0.709) ---
Living in birth state of both	-0.088*** (0.015) <i>-0.013</i>	-0.069*** (0.014) <i>-0.016</i>	-0.140 (0.080) ---	-0.075 (0.078) ---
Children 12 and under	-0.668*** (0.015) <i>-0.158</i>	-0.131*** (0.021) <i>-0.155</i>	-0.821*** (0.034) <i>-0.277</i>	-0.735*** (0.033) <i>-0.266</i>
Her Birth State X Children 12 and under	0.128*** (0.022) <i>0.040</i>	0.131*** (0.021) <i>0.042</i>	0.018 (0.087) ---	0.018 (0.083) ---
His Birth State X Children 12 and under	0.160*** (0.023) <i>0.049</i>	0.141*** (0.022) <i>0.046</i>	-0.102 (0.119) ---	-0.056 (0.113) ---
Both Birth State X Children 12 and under	0.202*** (0.017) <i>0.061</i>	0.184*** (0.016) <i>0.060</i>	0.176** (0.091) <i>0.053</i>	0.122 (0.088) <i>0.042</i>
Prob(Y=1 X)	0.751	0.728	0.633	0.582
Observations	210004	210004	14833	14833
LRchi2 (DF)	17967.33 (37)	18499.93 (37)	1958.33 (37)	1969.41 (37)
Pseudo R2	0.074	0.074	0.099	0.097

U.S. Census 2000. Coefficients presented with standard error in parentheses and marginal effect on the predicted probability in parentheses. Sample and control variables are as described in table 8.

Table 9: Employment and Labor Force Participation by State of Residence 5 Years Prior

	Non-Migrants			Migrants		
	(A) In Birth State	(B) Not in Birth State	(C) Difference for Non- Migrants (A) – (B)	(D) Into Birth State	(E) Not Into Birth State	(F) Difference for Migrants (D) – (E)
Married with Children 12 and under						
Employed	0.683	0.671	0.013***	0.581	0.535	0.054***
In Labor Force	0.704	0.689	0.016***	0.608	0.552	0.055***
Married with Children over 12 Only						
Employed	0.780	0.778	0.002	0.688	0.712	-0.024**
In Labor Force	0.801	0.799	0.001	0.723	0.749	-0.025**
Married with no Children in Household						
Employed	0.815	0.825	-0.010***	0.803	0.816	-0.013**
In Labor Force	0.838	0.847	-0.009***	0.837	0.849	-0.012*
Single never married (SNM) with Children 12 and under						
Employed	0.652	0.696	-0.044***	0.666	0.722	-0.056***
In Labor Force	0.743	0.775	-0.032***	0.776	0.801	-0.025*
SNM with Children over 12 only						
Employed	0.652	0.697	-0.045***	0.622	0.724	-0.103**
In Labor Force	0.721	0.761	-0.040***	0.703	0.823	-0.121***
SNM with no Children in Household						
Employed	0.762	0.815	-0.053***	0.807	0.869	-0.062***
In Labor Force	0.804	0.851	-0.046***	0.858	0.905	-0.047***

U.S. Census 2000 unweighted IPUMS sample. Includes all women aged 25-45 and born in the U.S. The sample of migrants includes those who lived outside their birth state five years prior to the census, and have since migrated across states.

Table 10: Probit Regressions: Labor Force Participation
Sample: Women who did not reside in their birth state five years prior to the census.

	MARRIED WOMEN				NEVER MARRIED WOMEN			
	All	Children 12 and under	Only Children over 12	No Children in the Household	All	Children 12 and under	Only Children over 12	No Children in the Household
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Omitted Case: (A) Non-migrant								
(B) Return migrant: Moved into birth state	-0.189*** (0.021) <i>-0.061</i>	-0.183*** (0.025) <i>-0.066</i>	-0.179*** (0.069) <i>-0.049</i>	-0.166*** (0.054) <i>-0.036</i>	0.014 (0.042) ---	0.164* (0.084) <i>0.164</i>	-0.353 (0.236) <i>-0.100</i>	-0.028 (0.050) ---
(C) Onward Migrant: Moved into another state.	-0.291*** (0.015) <i>-0.095</i>	-0.332*** (0.018) <i>-0.119</i>	-0.201*** (0.049) <i>-0.055</i>	-0.200*** (0.036) <i>-0.043</i>	0.012 (0.037) ---	-0.008 (0.084) ---	-0.153 (0.235) ---	0.011 (0.042) ---
Children 12 and under	-0.574*** (0.014) <i>-0.187</i>				-0.054* (0.031) <i>-0.011</i>			
Only Children over 12 in the household	-0.154*** (0.019) <i>-0.050</i>				0.100* (0.056) <i>0.020</i>			
Chi2 : Test (C) = (E)	17.46	26.81	0.07	0.32	0.00	2.38	0.39	0.43
Prob>chi2	0.000	0.000	0.788	0.574	0.959	0.123	0.531	0.511
Pr(Y=1 X)	0.739	0.676	0.806	0.866	0.880	0.790	0.796	0.901
Observations	74,036	47,592	11,233	15,211	19,306	3,520	796	14,990
Pseudo R2	0.080	0.633	0.645	0.103	0.158	0.078	0.103	0.180

U.S. Census 2000. Coefficients are presented with standard errors in parentheses, marginal effects in italics if p-value is less than 0.2.

Sample: A twenty percent random sample of all women aged 25-45, born in the U.S. who were not living in their birth state five years prior to the census. The full set of controls, as described in table 8, is included in each regression.

**Appendix 1: Means and Standard Deviations, NSFH Married Women
Sample**

	Live near Neither Mother	Live Near His Mother Only	Live near Her Mother Only	Live near Both Mothers
Sample Size				
Currently Working	0.648 (0.478)	0.627 (0.484)	0.689 (0.463)	0.693 (0.461)
Usual Weekly Hours (incl. 0)	23.893 (20.402)	22.993 (19.693)	26.577 (20.946)	25.261 (19.484)
Usual Weekly Hours (excl. 0)	36.906 (12.755)	36.690 (10.783)	38.642 (13.104)	36.166 (7.746)
Coreside with Her Mother			0.017 (0.130)	0.022 (0.145)
Coreside with His Mother		0.041 (0.198)		0.029 (0.168)
Different City Prior Wave	0.420 (0.494)	0.283 (0.450)	0.308 (0.462)	0.211 (0.408)
Her Siblings within 25 miles	0.145 (0.352)	0.709 (0.454)	0.333 (0.471)	0.820 (0.385)
His Siblings within 25 miles	0.165 (0.371)	0.319 (0.466)	0.725 (0.447)	0.824 (0.381)
Children 12 and under	0.546 (0.498)	0.562 (0.496)	0.559 (0.496)	0.635 (0.481)
Age	38.706 (8.124)	37.451 (7.297)	37.027 (7.586)	36.166 (7.746)
Medical Problems	0.205 (0.404)	0.246 (0.431)	0.245 (0.430)	0.197 (0.398)
Black	0.037 (0.188)	0.061 (0.240)	0.043 (0.203)	0.080 (0.272)
Hispanic	0.053 (0.223)	0.061 (0.239)	0.055 (0.229)	0.083 (0.276)
Mother has college degree	0.331 (0.471)	0.260 (0.439)	0.280 (0.449)	0.180 (0.384)
Half Power - He has College	0.202 (0.402)	0.115 (0.319)	0.111 (0.314)	0.103 (0.303)
Half Power - She has College	0.081 (0.273)	0.080 (0.271)	0.089 (0.284)	0.071 (0.257)
Power - Both have college	0.358 (0.480)	0.206 (0.405)	0.247 (0.431)	0.095 (0.294)
He is not working	0.089 (0.285)	0.120 (0.325)	0.119 (0.323)	0.111 (0.314)
His usual weekly hours (incl. 0)	42.522 (16.577)	41.571 (18.765)	41.148 (18.372)	41.706 (18.214)
He has Medical Problems	0.246 (0.431)	0.262 (0.440)	0.217 (0.412)	0.289 (0.453)

...

	Live near Neither Mother	Live Near His Mother Only	Live near Her Mother Only	Live near Both Mothers
Midwest	0.264 (0.441)	0.221 (0.415)	0.352 (0.478)	0.275 (0.447)
South	0.361 (0.480)	0.337 (0.473)	0.302 (0.459)	0.359 (0.480)
West	0.249 (0.433)	0.249 (0.433)	0.197 (0.398)	0.145 (0.352)
Average Commuting Time	22.101 (4.040)	22.266 (3.812)	21.928 (4.554)	21.780 (4.100)
Resides in MSA	0.856 (0.351)	0.824 (0.381)	0.819 (0.385)	0.766 (0.423)
MSA Unemployment Rate	5.970 (1.678)	6.353 (1.742)	6.145 (1.866)	6.637 (2.248)
Her Mother Aged Less than 60	0.291 (0.454)	0.305 (0.460)	0.344 (0.475)	0.377 (0.485)
Her Mother Aged 60-69	0.332 (0.471)	0.345 (0.475)	0.354 (0.478)	0.342 (0.474)
Her Mother Widowed/Divorced	0.266 (0.442)	0.305 (0.460)	0.218 (0.413)	0.257 (0.437)
Her Mother in Poor Health	0.142 (0.349)	0.132 (0.338)	0.122 (0.328)	0.134 (0.340)
His Mother Aged Less than 60	0.206 (0.404)	0.229 (0.420)	0.319 (0.466)	0.320 (0.466)
His Mother Aged 60-69	0.349 (0.477)	0.350 (0.477)	0.336 (0.472)	0.340 (0.474)
His Mother Widowed/Divorced	0.291 (0.454)	0.311 (0.463)	0.273 (0.446)	0.298 (0.457)
His Mother in Poor Health	0.102 (0.303)	0.168 (0.373)	0.093 (0.291)	0.120 (0.325)

NSFH Wave II. Weighted percentages. Sample includes all married women aged 25-60, non-students, whose mother and mother-in-law is ALUS. "Near" is 25 miles or less.