Motherhood, Migration, and Self-Employment of College Graduates

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Abstract

Female self-employment has received increasing attention from both academic researchers and the popular media. Women face unique challenges in starting and running their own businesses, which may contribute to lower self-employment rates compared to men. Women may also have differing motives for pursuing self-employment. Previous research suggests that married women with families especially value the flexibility that self-employment can offer them. At the same time, college graduates tend to have more successful businesses compared to their less educated counterparts. Thus, we focus on the self-employment outcomes of married mothers who are college graduates. Such women may choose to become self-employed in order to work a more flexible schedule or fewer hours, allowing them to balance their family responsibilities with their career aspirations. Access to childcare is an additional factor that may affect their labor force decisions. Since one potential source of childcare is the proximity to extended family, we use American Community Survey microdata to examine how birth-state residence for college graduate married mothers relates to self-employment and hours worked. Our results support our hypothesis that flexibility in hours worked is a major factor pulling out-migrant college-educated mothers into self-employment, perhaps due to being away from family who could provide childcare. Additionally, it appears that in response to fewer childcare options, self-employed mothers residing outside their birth-state work fewer hours in their businesses. Conversely, self-employed mothers residing in their birth state are able to work more hours per week.

Keywords: motherhood, migration, self-employment, childcare, hours worked
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1. Introduction

Female labor force participation (LFP) in the United States is near record levels as is the contribution of women to the overall economy, with much of the increase since the 1970s attributed to the employment decisions of married women and mothers (Juhn and Potter 2006). While overall female self-employment levels are lower than for men, the number of women entering self-employment has been increasing. As shown in Patrick et al. (2016) as of 2014, about 35% of the self-employed were women and married women were self-employed at higher rates (8%) than unmarried women (4%).

As we will further discuss below, the employment outcomes of married women are strongly tied to their family obligations (Kuziemko et al. 2018). For married mothers with young children, a major impediment to working is the need for childcare. However, if self-employment with its potentially more flexible hours provides them with an opportunity to work, rather than not work, it will increase their income and have positive impacts on the economy.

Married women's employment is also highly tied to that of their spouse (Cooke 2003). Migration of married couples usually is driven by the employment of the male spouse, and is more likely for college graduates. This can have a negative impact on women's labor market outcomes. Additionally, having a spouse who earns a higher income may make it less likely that a married woman, especially with young children, needs to work. Married women who are college graduates are more likely to be married to spouses who are also college graduates (e.g. Hotchkiss and Pitts, 2005). At the same time, migration can impact access to childcare from extended family and family friends. As discussed in Section 2, grandparents have been shown to be an especially valuable provider of childcare assistance to families with young children.

Using American Community Survey microdata, we consider the employment and self-employment decisions of married college graduate mothers, including the relationship with proximity to their family (proxied by living in their home state or the home state of their spouse). We focus on college graduates because they are the ones most likely to migrate, have higher earning spouses, and, if self-employed, be successful.[6]

This research contributes to the research literature by providing quantitative evidence of the impacts of motherhood and migration on the self-employment outcomes of educated women. Regarding motherhood, migration, and self-employment, while several previous studies have examined the relationship between two of these three variables, ours is the first, to our knowledge, to model the relationships between all three factors simultaneously. Thus, we fill an important gap in the literature.

The results suggest that motherhood and migration have important impacts on the self-employment outcomes for married college-educated women. Specifically, we find that mothers of young children who have migrated are more likely to be self-employed but also work fewer hours, especially in self-employment. This is consistent with a need for work flexibility and a lack of childcare support from extended family for out-migrant mothers. At the same time, there is evidence that out-migrant mothers are less likely to work at all, perhaps due to migration hurting their employment opportunities or due to the heavy costs of childcare relative to the benefits of paid employment.

In what follows, we review the previous literature, explain our data and methods, and review the results. In the final section, we make some concluding remarks.

[6] There is evidence that people with higher levels of education are more likely to be self-employed and to be successful in their ventures (Robinson 1994, Dolinsky et al. 1993, Boden 1996).

2. Literature Review

Our research is motivated by several strands of literature regarding the impact of gender, migration, marriage, childcare, and education on self-employment and other employment outcomes.

Who becomes self-employed and the reasons for self-employment may vary by gender (Winn 2005, Maguire and Winters 2017). Carr (1996) finds that family characteristics such as being married and having young children are the strongest predictors of self-employment participation by women. Examining the choice to switch from paid-employment to self-employment for both men and women, Boden (1996) finds that, while education makes both men and women more likely to be self-employed, fertility is a major driver for women, with mothers of young children entering self-employment at a higher rate than other women. One reason may be that married mothers may be pulled into self-employment due to a more flexible schedule. Alternatively, married mothers may be pushed into self-employment to balance family and household obligations that fall more heavily on women (Patrick et al. 2016). Boden (1999) provides evidence that women with young children are more likely to cite flexibility and family reasons for being self-employed, while men's reasons have nothing to do with family status. In a survey of self-employed men and women, Loscocco (1997) finds that, while all enjoy flexibility, women emphasize the importance of the flexibility for balancing work and family, especially in their role as a parental caregiver. Overall, there is evidence that marriage (Carr 1996; Boden, 1999) and children (Noseleit 2014, Boden 1996, Boden 1999, and Wellington 2006) increase the likelihood that women will become self-employed. Finally, while children can reduce the labor force participation (LFP) of mothers (Budig 2003, Cristia 2008, Hotchkiss et al. 2011), self-employment may allow them to stay in the workforce.

One reason that self-employment may be more desirable for women with children is if the flexibility includes working fewer hours. Carr (1996) finds that most women in paid-employment work full-time, while the hours worked by the self-employed are more varied. Thus, self-employment may provide an option between full-time salaried employment and not working. In fact, Patrick et al. (2016) find that self-employment may be an alternative to completely exiting the labor force for married women with young children, but not for unmarried women, suggesting that pooling married and unmarried women together may mask this heterogeneity in the employment decisions.

The education level of married mothers may also impact the employment decision. In analysis that focuses on the employment outcomes for married mothers, Patrick et al. (2016) find that mothers with more education are less likely to work at all – and find no positive impact on self-employment. This may be due to the fact that more educated women are married to more educated and higher earning men (making it less necessary for them to work) (Boyle et al. 1999; Hotchkiss and Pitts 2005). Despite this, Wellington (2006) finds that more educated women are more likely to be pushed into self-employment due to children. Overall, it appears that college-educated women are the ones most likely to be self-employed as a flexible career option, i.e. having the ability to work part-time (Carr 1996, Wiswall and Zafar 2016). There is also evidence that mothers who are self-employed are at least or more likely to have successful businesses than other women (Joona 2018), suggesting that a desire for flexibility does not hinder success.

For married couples, the impact of household migration on employment outcomes is complex (Cooke 2008). Even if both spouses have good earning potential, since both may not be able to take advantage of his/her best opportunity, there are costs to migration (Mincer, 1978). College-educated people are the most likely to migrate (Malamud and Wozniak 2012). However,

women are the ones most likely not to work after migration, with the effects larger the farther a couple moves from home (Boyle et al. 2001). Using data from Canada, Shihadeh (1991) finds most wives (regardless of earnings) defer to their spouse on the decision to move. This is consistent with Li and Mroz (2013), who find that women's labor market opportunities are a smaller factor in the migration decisions of couples. Migration tends negatively to affect married women's employment, even if they are the "dominant" higher earning spouse (Boyle et al. 1999). Cooke (2001) finds that married mothers are especially likely to have reduced employment following family migration, while married women without children are much less affected. For college graduate women, their spouses are also likely to be college graduates; thus, there still will be a choice about whose career will be sacrificed, and typically, it has been the woman's. However, both Shihadeh (1991) and Bielby et al., (1992) find that the differences between the genders is significantly lower in couples that reject traditional notions about the roles of husbands and wives.

Maxwell (1988) shows that migration can result in higher earnings for married men (further evidence that men are the ones most likely to be driving the migration decision of the couple) while married women have initially lower earnings after the move. Maxwell (1988) also suggests that married women who do not migrate have persistently lower earnings. Perhaps this is because these married women are geographically constrained and may not be able to take advantage of higher earnings opportunities (Sandell 1977). This lack of opportunities may push married women out of the labor force, especially if the costs of childcare are high. However, self-employment, with its flexibility, may be an alternative for some women and the literature has not really explored how migration of couples can affect the self-employment of married women.

A significant literature exists exploring the importance of access to childcare on the LFP of mothers, with mixed results. Cascio (1999) examines state policies lowering public schooling start ages. She finds a positive impact on the LFP for unmarried women with no younger children at home, but not on other mothers. Kimmel (1998) finds that the cost of childcare has a significant impact on the LFP of women with children, especially for married women. Givord and Marbot (2015) examine the effect of childcare subsidies for pre-school aged children in France and find a small impact on increasing maternal LFP, but in most cases, it appears that informal care is just being replaced by more formal care. Lefebvre (2009) studies a policy in Quebec (Canada) to provide low-cost universal childcare and finds it led to an increase in the LFP of mothers and weeks worked, especially for educated mothers. However, a follow up paper (Haeck et al. 2015) finds that the long-term benefits went to lower educated mothers, perhaps because more educated mothers were early adopters.

Self-employment may be an option that allows mothers to work but also provides them with flexibility to take care of their children. Connelly (1992) looks at self-employment and, specifically, the potential for being self-employed in the childcare sector. She finds that the presence of young children is an important factor in both choosing to be self-employed (generally) and to be a childcare provider. However, young children may make it more difficult to be in full-time self-employment, since unlike with paid employment, it may be difficult to take off time to care for a sick child if someone is self-employed full-time (Winn, 2005). This suggests that mothers with young children may be more likely to work part-time.

For mothers of young children, another alternative to formal childcare can be the care provided by family. In a report for the U.S. Census Bureau, Overturf Johnson (2005) reports that, in 2002, 28.3% of children under 5 with employed mothers were regularly cared for by their

grandparents. Posades and Vidal-Fernandez (2013) also explore how this affects the LFP of mothers. Using data from the National Longitudinal Survey of Youth (1979), they find that having the maternal grandmother be the backup primary caregiver (after the mother) has a positive and statistically significant impact on the LFP of mothers with young children.

Even absent data on whether a grandparent is a primary caregiver, simply living in close proximity to friends and family may provide informal support to mothers of young children. Using data on Canadian women, Compton (2015) finds that married women with young children have lower levels of LFP if they live more than a half a day away from their mothers (but there are no impacts from only living close to their fathers). She also finds evidence of male-dominated migration patterns (consistent with the idea that the wife is a trailing spouse). Garcia-Moran and Kuehn (2017) use data from West Germany to examine the impact of proximity to grandparents on married women's fertility and employment decisions. Their results suggest that living close to parents or in-laws is associated with higher fertility and maternal LFP.

Compton and Pollak (2015) examine the proximity of adult children and their mothers in the United States. They find that the probability of close proximity depends primarily on the age and education of the adult child, not on the presence of young children or on characteristics that might indicate the need for help. This suggests that people are not choosing whether or not to migrate based on the need for grandparent childcare. They also find that it is the mothers of women who are most likely to help by providing childcare, especially when the grandchildren are young. They use Census data to look at the relationship between other factors and whether or not someone lives in her home state – a proxy for living in proximity of her mother. Their paper finds that, in 2000, of those at age 30, 63 percent of all (men and women) native-born adults resided in their birth state, however, the number dropped to 52 percent for those with a college

degree. Overall, individuals with more education are more likely to have migrated and more likely to have married someone born outside their birth-state. Additionally, they find that, in 2000, 59 percent of all married couples aged 25 and older consisted of spouses born in the same state. However, for couples in which both spouses held college degrees – only 46 percent were born in the same state. No matter what the education level, however, if spouses are from the same home state, they are more likely to live near both mothers.

Using the same proxy for living near family of whether or not someone lives in her birth state, Compton and Pollak (2014) examine how this may affect the LFP of married women with young children. They find that the LFP is higher for married women with young children who live either in their own home state or in the home state of their spouse, suggesting that proximity to family affects their labor force decisions, likely because of the access to childcare from grandparents or other extended family.

Our research expands on this broad, prior literature to examine the interaction of migration, marriage, children, education, and proximity to family on women's self-employment. Our study is most closely related to work by Compton and Pollak (2014, 2015), but our focus on self-employment is a fundamental departure from their analysis. We also use more recent data and focus on college graduates because of their special importance in business creation.

3. Data and Methods

3.1 ACS Sample

This study uses microdata from the pooled 2014-2016 American Community Survey (ACS). The ACS is an annual survey conducted by the U.S. Census Bureau and administered to a random one percent sample of the U.S. population each year with samples independently

drawn across years, so it is not possible to link individuals across years. Our analysis uses a pooled cross-section of three years of data to increase sample size and estimate precision. The ACS collects individual-level information related to employment, education, demographics, household composition, and other socioeconomic variables. Important for this analysis, the ACS asks individuals whether they worked during the previous year, and if so, whether they worked in paid employment or self-employment. The ACS also asks workers to report the usual number of hours per week that they worked during the previous year. In addition, the ACS microdata include an individual's current U.S. state of residence and the U.S. state in which she was born.

Our study examines the employment and self-employment outcomes of college graduate married women, with a focus on those with children in the household. Our analytical sample is limited to married women ages 25-59 whose highest education is a bachelor's degree or higher.[7] We focus on college graduates because they have higher labor force participation rates, greater geographic mobility, and more successful businesses compared to women with less than a bachelor's degree. The lower age range cutoff is chosen because many women in their early 20s are still finishing college. The upper age cutoff is chosen to balance the desire for a reasonably large sample while minimizing the influence of early retirement decisions. To increase comparability, we also limit the sample to women born in the United States. In our analysis, we classify married mothers based on the age of their youngest child.

[7] We do not include unmarried women as Patrick et al. (2016) found that their employment decisions are quite different.

3.2 Dependent Variables and Estimation Methods

We examine multiple dependent variables. We first investigate the probability of self-employment via probit model estimation:[8]

$$P_i = \Pr(y_i = 1|X) = \Pr\left(y_i = 1|x_1, x_2, x_{3,\dots}\right) = \Phi(Z_i)$$

$$Z_i = \beta_0 + \beta_1 x_{1i} + \cdots + u_i$$

Where the probability P_i of being self-employed is determined by $\Phi(Z_i)$, the standard normal cumulative distribution function. The dependent variable is a binary indicator equal to one if a woman is self-employed and zero otherwise. Thus, the probit model estimates the probability of being self-employed, given the explanatory variables *X* that we further explain below. Our primary analysis includes both paid-employees and non-workers in the comparison category to self-employment. However, in robustness checks, we also exclude non-workers from the sample. For comparison, we also estimate probit models with a paid-employment dependent variable, which equals one if a woman works as a paid employee and zero otherwise. Additionally, we consider the probability of working at all during the previous 12 months (in either self-employment or paid-employment) with non-workers as the zero category (results are in Appendix Table A1).

We are also interested in labor supply at the intensive margin. That is, conditional on choosing a particular employment category, how do our main variables of interest affect hours worked? We take the natural log (*ln*) of the usual hours worked per week (log hours worked) and examine the factors that affect the intensity of work using a linear regression model (we further explain the explanatory variables contained in *X* below):

$$ln(hours\ worked) = X\beta + \varepsilon$$

[8] Our analysis is conducted using Stata.

We estimate log hours worked regressions separately for the self-employed and paid employed.

Unfortunately, selection into self-employment and paid-employment may not be randomly assigned, even conditional on controls, and this could potentially bias the coefficients in our estimates for the log hours worked. To account for this potential selection bias, we estimate two-step Heckman selection correction models (Heckman 1979). In the first step, we estimate the probit regressions for the probability of self-employment (or paid-employment) for the full sample. We use the results from the first-stage to compute the inverse Mills ratio for each observation. The inverse Mills ratio is the ratio of the probability density function to the cumulative density function based on the standard normal distribution (since we estimated the first stage using probit). We include the inverse Mills ratio in the second stage (log hours worked) equation to account for selection into self-employment (or paid-employment), in other words, for the potential omitted selection bias.

The Heckman procedure warrants an exclusion restriction, a factor that affects the first stage but should not be included in the second stage. After careful consideration and review of the literature, we chose to include dummy variables for the college major of each woman as our exclusion variables. The ACS asks all college graduates to report the major field of study for their bachelor's degree. These are coded into 37 two-digit categories, which we use to construct college major dummy variables.[9] There is evidence that field of study affects whether or not someone is self-employed (Leoni and Faulk 2010). Further, we believe that college major affects the decision to be self-employed because it affects potential wages in paid employment and self-employment (Cai and Winters 2017). However, conditional on being self-employed, college

[9] The ACS also reports college major divided into 173 detailed categories. However, the probit and Heckman procedures that we use perform better with a more moderate number of dummy variables, so we use the broader categories.

major is unlikely to have a further effect on hours worked, especially among married mothers. Thus, the college major dummy variables are used for the exclusion restriction in our Heckman estimation. We also use college major dummy variables in our Heckman estimation of hours worked among the paid-employed. However, we have less confidence in the college major exclusion restriction for the paid-employed than for the self-employed, because some college majors are tied to particular jobs in paid employment that may have strong patterns of hours worked.

3.3 Explanatory Variables

While a number of factors likely influence employment and self-employment decisions, we focus on a few important variables of interest. First, we consider the age of the youngest child in the household and we categorize youngest children into three categories: ages 0-4, ages 5-12, and ages 13-18. These categories are motivated by childcare demands. Children under age 5 are typically not in school in the U.S., thus working parents of these children often face substantial childcare costs. Children ages 5-12 are typically in school but may require childcare after school and on weekends, potentially altering maternal work decisions but not as strongly as with children ages 0-4. Children ages 13-18 are typically in school and have the least need for in-person supervision outside of school, yielding even lower childcare costs for working parents. Of course, the exact childcare costs incurred depend on a number of factors, but age of the youngest child is likely an important one. We first examine differences across married women based on the age of the youngest child and then proceed to explore other factors for these groups of mothers as separate sub-samples.

We expect young children to have different impacts on self-employment versus paid-employment. Many married mothers may choose self-employment for its flexibility in hours worked, both in how many hours to work and when to work. Paid employment is typically less flexible. Thus, compared to self-employment, we expect young children to reduce married mothers' probability of paid-employment. Said another way, compared to paid employment, having young children may increase their probability of self-employment, although it could also drive them completely out of the labor force. We also expect mothers with young children to work fewer hours in both self-employment and paid-employment because of childcare demands.

Another important explanatory variable of interest relates to migration decisions. Unfortunately, the ACS has somewhat limited information on prior residential locations, so constructing a complete migration history is not possible. The most useful ACS migration information for our purposes is state-level lifetime migration between birth and the time of the survey. More specifically, the ACS includes information on both the state of current residence and state of birth. We define individuals as birth-state leavers if they no longer live in their birth-state at the time of the ACS and as birth-state stayers if they reside in their birth-state during the time of the ACS. Of course, some of our stayers, may have left and came back, but we cannot observe that. We also do not know the local area within the state in which they were born. Some states are very large and our classification does not differentiate between those who live in the same town their whole life and those who move around within their birth state. Still, our simple categorization of birth-state stayers and birth-state leavers allows for useful insights and has been used in previous research (Compton and Pollak 2014; Sjoquist and Winters 2014; Winters 2017). We implement this in the analysis by defining a dummy variable equal to one if a woman is a

birth-state stayer and zero if she is a birth-state leaver; we refer to this as own birth-state residence.

Own birth-state residence is expected to have opposite relationships with self-employment and paid-employment for married mothers. We expect own birth-state residence to be associated with higher rates of paid-employment for married mothers because of better access to childcare resources as noted in the previous literature. Those living in their birth-state are on average geographically closer to family and longtime friends who can provide high quality childcare at reasonably low cost, both on a regular basis and in special situations. Better childcare availability makes it more advantageous to work any job and especially a good job with greater time demands. Working mothers living away from family may need more time flexibility than those living near family and this may pull them into self-employment. At the same time, family demands may push them into self-employment. Thus, own birth-state residence is expected to be associated with lower rates of self-employment among married mothers (in other words, those who are not in their home state will have higher rates).

Own birth-state residence is expected to increase hours worked for both self-employed and paid-employed married mothers because of the same potential childcare support from family and friends. The effect is expected to be more pronounced for self-employed women because they have greater flexibility in hours worked. Furthermore, we expect that own birth-state residence will have a larger increase in hours worked for women with younger children than those with older children because childcare is especially important for mothers of young children.

We also include a dummy variable indicating whether a woman resides in her spouse's birth-state.[10] Being in the spouse's birth state is expected to provide childcare access similar to being in the wife's birth state; thus, this is expected to have directionally similar coefficients as the wife's own birth-state dummy, but the magnitudes could possibly differ. For example, some mothers may feel more comfortable requesting and receiving help from their own families and friends than from those of their spouses, suggesting possibly smaller magnitudes for residing in the spouse's birth-state.

Spousal income may also matter. Spouses' actual incomes are potentially endogenous because they may be jointly determined with their wives' labor supply decisions. For example, some families may jointly choose that the wife will work less (or not at all) in the labor market and her spouse will work longer hours to increase family income (Black et al. 2014). Other families may choose for the wife to work long hours while the spouse works less (or not at all). To deal with this potential endogeneity, we predict the spouse's log income to include as an explanatory variable. To do so, we use a linear regression of log annual earned income on a quartic specification of age and dummy variables for education level, college major, race/ethnicity, survey year, state/country of birth, and the dummy for residing in the spouse's birth state. We include all spouses who reside in the same household as their wife regardless of age, education, or nationality of the spouse. We then predict their log income using the coefficients from our regression. While some spouses have non-positive income and are excluded from the log income regression, we still predict their log income based on their characteristics and the log income regression coefficients. We expect that higher predicted spousal income will reduce the probability that the wife works in paid employment and increase

[10] Our sample includes both opposite-sex and same-sex couples. We use the term wife to refer to the person under observation and use the term spouse to refer to the wife's marital partner.

the probability that the wife works in self-employment; it may also increase the probability that she will not work at all. Predicted spousal income is also expected to reduce the wife's hours worked. Since we predict the spousal income, we need to account for this by adjusting our standard errors. We do so by bootstrapping our standard errors with fifty replications.[11]

Our probit and hours worked models also include a number of control variables such as a quartic specification of age, and dummy variables for education level, race/ethnicity, survey year, and state of birth. We also control for college major in the self-employment and paid-employment probit estimation but not in the hours worked regressions as noted above. These additional variables are included as controls and not of primary interest themselves.[12]

The inclusion of state of birth dummy variables mean that we are netting out the effects of common factors that influence all married mothers from a state. Our own birth-state residence dummy with birth-state fixed effects thus compares mothers residing in their birth-state to mothers born in the same state but residing outside the state. Of course, location decisions may be affected by unobservable factors for which we cannot control, so there is some threat to identification of causal estimates for the birth-state residence dummy. However, a large literature suggests that married mothers' location decisions are largely tied to the location-specific employment opportunities of their spouses as noted in the literature review section. Thus, while we cannot rule out possible bias, our estimates should be directionally consistent since any bias is likely relatively small for the employment outcomes of married mothers, especially after including the extensive set of additional variables.

[11] For bootstrapping, we use the default *bootstrap* command in STATA.
[12] As they are numerous, we do not report their results. However, they are available by request from the corresponding author.

Sub-sample means for the main variables in our analysis are shown in Table 1. All sub-samples are restricted to married, female college graduates ages 25-59 who were born in the U.S. Column 1 includes all currently married women with a spouse present. Columns 2-4 include only married mothers whose youngest children are ages 0-4, 5-12, and 13-18, respectively.

The sub-sample means do not account for the control variables, so strong conclusions are not possible. For example, the age of the youngest child is correlated with the age of the mother, which is also correlated with numerous labor market outcomes. However, some descriptive patterns are useful to note. First, the paid-employment rate is large for all groups. For example, in Column 1, 77.5 percent of married, college-graduate women work in paid-employment compared to only 7.4 percent in self-employment. The remainder (15.1 percent) are not employed at all; the non-employment rate is lower than the overall U.S. population because the sample is restricted to college graduates ages 25-59 born in the U.S. Both the self-employment and paid-employment rates are lower in Column 2 for married mothers whose youngest child is age 0-4 than for the full sample of married women in Column 1. Means for own and spousal birth-state residence are above half for all groups. Birth-state residence decreases with a person's age (Winters 2017), which likely explains the moderate differences by age of youngest child among Columns 2-4. Similarly, the higher mean spousal income for mothers with older children is likely because they have older spouses and average (spousal) income increases with age and labor market experience (Mincer 1974).

Mean log hours worked differs between self- and paid-employment and across the sub-samples.[13] Perhaps not surprisingly, paid-employed women work more hours than the self-employed, and the difference is especially pronounced for mothers of young children. Self-

[13] Mean log hours worked is restricted to the sample with positive hours worked and in the corresponding self- or paid-employment category.

employed mothers whose youngest children are older work more mean hours than self-employed mothers whose youngest children are age 0-4. Figures 1 and 2 illustrate the distribution of usual hours worked per week for married, college-educated women in ten-hour intervals, with the self-employed in Figure 1 and the paid-employed in Figure 2. For self-employed college graduate women in Figure 1, the fourth interval (31-40 hours) has the largest share, but there are also sizable shares for each of the first three intervals (1-10, 11-20, and 21-30 hours) and the fifth interval (41-50). In Figure 2, however, the mass is much more concentrated, with more than half of the sample in the 31-40 hours interval. Overall, 50.6 percent of the self-employed work 30 hours or less, but only 17.5 of the paid-employed work 30 hours or less. Thus, paid-employment is dominated by "full-time" jobs, while self-employment exhibits much greater opportunities for part-time work; a sign of increased flexibility.

4. Empirical Results

4.1 Full Sample of Married Women

Table 2 presents results for our full sample of married women, the same sample as in Column 1 of Table 1. This analysis includes dummy explanatory variables for the three categories for age of the youngest child. The omitted reference category is married women with no child (age 18 or under) in the household; a few of these have adult children in the household but most have no child in the household. For ease of interpretation, we report average marginal effects and corresponding bootstrapped standard errors for the probit models for self-employment and paid-employment in Columns 1 and 2, respectively. Log hours worked results using the second stage of the Heckman selection procedure are reported in Columns 3 and 4, with the inverse mills ratio results at the bottom of these columns.

In Column 1, we see that the probability of self-employment is significantly higher for married mothers of young children relative to observationally similar married women without children. The variable for youngest child ages 0-4 has a positive marginal effect of 0.012 that is statistically significantly different from zero at the one percent level. The marginal effect of 0.009 for youngest child 5-12 is also positive and significant. The mean self-employment rate in Table 1, Column 1 is only 0.074, so the implied relative magnitudes in Table 2, Column 1 for these two categories are meaningfully large. For example, the marginal effect of 0.012 corresponds to a 1.2 percentage point increase relative to the mean of 7.4 percent self-employed.[14] The variable for youngest child 13-18 has an estimated marginal effect of zero. Thus, having a youngest child age 0-4 or 5-12 appears to increase self-employment for college graduate married mothers, but having a teenager as the youngest child in the household does not.

Table 2 also reports results for the own birth-state residence dummy variable, the spouse birth-state residence dummy variable, and predicted spousal log income. In Column 1, both of the birth-state residence variables have negative and statistically significant marginal effects. The marginal effect of -0.009 for own birth-state residence is moderately larger than the marginal effect of -0.006 for spouse birth-state residence and the difference is significant at the ten percent level. As predicted, this suggests that women who live away from their home state (or their spouse's home state) are more likely to be self-employed. Predicted spouse log income is also significantly positive with a marginal effect of 0.015, suggesting that college graduate women with a higher earning spouse are more likely to choose self-employment.

[14] Since self-employment rates increase with age and married mothers with young children are on average younger, they have lower mean self-employment rates in Table 1 than the full sample. This means that the appropriate mean for relative comparisons is lower than the full sample mean, implying an even greater relative magnitude. However, we compare to the full sample mean for simplicity. The probit regression accounts for individual characteristics and estimated marginal effects are relative to similar married women without children.

Table 2, Column 2 reports results for the probability of paid-employment. All three youngest child variables have statistically significant negative marginal effects, but the magnitudes differ widely. Having a youngest child age 0-4 has a marginal effect of -0.173, while the youngest child 5-12 and 13-18 variables have marginal effects of -0.096 and -0.028, respectively. These marginal effects are much larger than for self-employment, but mean paid-employment rates are also much higher, so the effects relative to sample means are comparable. Also, recall that our sample is not conditioned on working at all. The fact that these negative marginal effects for paid-employment are larger in absolute magnitude than the corresponding positive marginal effects for self-employment means that young children make it less likely that a married, college graduate woman would work at all. We test and confirm this more formally by estimating a similar probit equation where the dependent variable is any employment in either self-employment or paid-employment (results are in Column 1 of Appendix Table A1).

We also find in Column 2 that birth-state residence and predicted spouse log income have significant marginal effects with the opposite signs from self-employment. Own birth-state residence has a marginal effect of 0.036, and spouse birth-state residence has a marginal effect of 0.025. These magnitudes exceed those for self-employment, indicating that the net effects of birth-state residence on any employment are positive (as confirmed in Appendix Table A1). Predicted spouse log income has a negative relationship with paid employment with a marginal effect of -0.111. In other words, women with a higher earning spouse are less likely to take paid employment.

Table 2, Column 3 examines log hours worked of the self-employed using the Heckman procedure to account for selection into self-employment. All three youngest child variables have significant negative coefficients, indicating that having children in the household is associated

with reduced hours worked among married self-employed college graduate women, compared to similar married women without children. The youngest child magnitudes are largest for those with young children and smallest for those with older children. The coefficients are -0.495, -0.293, and -0.156 for youngest child age 0-4, 5-12, and 13-18, respectively. Since the magnitudes are very large, we exponentiate the log differences to interpret the magnitudes more accurately. Thus, for women whose youngest child is 0-4 years old, a log difference of 0.495 implies a 64 percent decrease in hours worked. Correspondingly, log differences of 0.293 (with a youngest child of 5-12 years old) and 0.156 (with a youngest child of 13-18 years old) correspond to decreases of 34 percent and 17 percent, respectively. In other words, having young children has a significant negative impact on the number of hours married college graduate mothers work in self-employment. Own birth-state and spouse birth-state residence are both significantly positive with coefficients of 0.050 and 0.027, respectively; this suggests that those married women in their home states (with access to family) can work more. Predicted spouse log income is negative with a coefficient of -0.177. Finally, the inverse mills ratio coefficient is roughly zero and not statistically significant, which suggests that if we ignored the potential selection bias, it would not substantively alter these results.

Table 2, Column 4 examines log hours worked for the paid-employed via the Heckman procedure to account for selection. All three youngest child variables are significantly negative with coefficients of -0.113, -0.119, and -0.071, for youngest child age 0-4, 5-12, and 13-18, respectively. Again, we see that having children lowers the number of hours worked, but the magnitudes are smaller than for the self-employed in Column 3 and the pattern by age of youngest child is less pronounced. Own birth-state and spouse birth-state residence are both negative, but the coefficients are relatively small. Predicted spouse log income is again negative

with a coefficient of -0.069, but the response magnitude is much smaller than for the self-employed in Column 3. Overall, the results suggest that once the decision is made to enter paid-employment, the main explanatory variables of interest have less of an effect on the number of hours worked, consistent with Figure 2. In this case, the inverse mills ratio coefficient is significant at the one percent level, indicating that selection into paid-employment is an important issue to account for; simple OLS of log hours worked in paid employment would yield estimates suffering from significant selection bias.

The results in Table 2 are consistent with migration and childcare playing an important role in self-employment, paid-employment, and hours worked decisions of married women. Younger children typically have more intensive childcare demands, and married mothers with young children especially appear to respond by decreasing participation in paid-employment and increasing participation in self-employment. Self-employment is likely appealing for many because of the greater flexibility in work schedules and this is evidenced by the number of hours worked. Married mothers with young children work fewer hours in both paid-employment and self-employment, but the magnitude is very large for those in self-employment. Thus, an important part of the flexibility in self-employment for married mothers is the flexibility to work significantly fewer hours. Many jobs in paid-employment have less flexibility, so married mothers with young children are not able to reduce their hours as much in paid-employment.

Notably, living in one's own birth-state or the birth-state of one's spouse often increases access to high-quality but low-cost childcare via family and long-term friends. On average, residing in one's own or one's spouse's birth-state increases paid-employment, reduces self-employment, and increases hours worked in self-employment with minimal effects on hours worked in paid-employment (possibly due to less flexibility). Better childcare access from birth-

state residence reduces the benefits of self-employment as a response to childcare needs, but it also increases hours worked among those who are self-employed. Thus, childcare resources appear to have opposite effects on the intensive and extensive margins of self-employment for married mothers. Better childcare means fewer mothers participate in self-employment, but those who are self-employed work more intensively. It also may reflect that migration may have a negative impact on wives' employment networks and skill matches, thus increasing their need to be self-employed.

4.2 Sub-Samples of Married Women

We next take a more detailed look at the associations between our employment outcomes and birth-state residence by estimating separate regressions for sub-samples of college graduate married women by age of the youngest child. Table 3 includes the estimates for the probit models for self-employment and paid-employment probabilities in panels A and B, respectively. Columns 1-3 are for sub-samples of married mothers with youngest child age 0-4, 5-12, and 13-18, respectively. Corresponding probit results with the probability of working at all as the dependent variable are in Appendix Table A1, Columns 2-4.

In Panel A of Table 3, the marginal effect of own birth-state residence on the probability of self-employment is significantly negative for all sub-samples. The marginal effect varies slightly across the groups, but not in a way with strong economic implications. Spouse birth-state residence also has significantly negative marginal effects in Columns 1-2, but the effect is not statistically significant at the ten percent level in Column 3; and all values are smaller than own birth-state residence. Thus, proximity to a woman's own family appears to be especially important to the self-employment decision for college graduate married mothers. Predicted

spouse log income is significantly positive in Columns 1-3 with the marginal effect estimate moderately increasing with age of the youngest child. This makes sense since married women with children and spouses that make more money may be more likely to be self-employed for the flexibility to take care of family rather than to enter into paid-employment, which is more likely to be full-time.

In Panel B of Table 3, own birth-state residence has a significantly positive marginal effect on the probability of paid-employment for all three sub-samples. The magnitudes are largest for Column 1-2, the subsamples with youngest child age 0-4 and 5-12, respectively. Spouse birth-state residence marginal effects are also significantly positive in Columns 1-3, with the largest magnitude for mothers with youngest child 0-4 in Column 1; but in all cases are smaller than own birth-state residence. Again, proximity to the woman's family appears more important in determining whether or not a woman will enter paid-employment. Predicted spouse log income is negative for Columns 1-3 with only moderate differences across the columns. Again, this makes sense since women with children at home and higher earning spouses would be less likely to take on the less flexible work option of paid-employment as higher earning spouses likely work more hours and the higher spousal income reduces family reliance on the mother's income.

Table 4 examines the intensive margin of log hours worked for the sub-samples considered in Table 3. Panel A reports the Heckman selection model estimates for self-employed women, and Panel B reports similar results for women in paid-employment. In Panel A, the coefficient for own birth-state residence is larger in Column 1 than in the other columns. The coefficient estimates are positive but not significant in Columns 2-3. Thus, it appears that the previously observed positive relationship in Table 2 between own birth-state residence and log

hours of the self-employed is disproportionately driven by mothers whose youngest child is age 0-4. The spouse birth-state residence coefficient is small and not statistically significant in Column 1, but it is moderately large and statistically significant in Columns 2-3. Predicted spouse log income has large significantly negative coefficients with only moderate differences across Columns 1-3.

In Panel B of Table 4, examining hours worked by the paid-employed, own birth-state residence and spouse birth-state residence both have small coefficients across all three columns. Predicted log spouse income has significantly negative coefficients in Columns 1-3 with the coefficient smaller in magnitude in Column 1 than in Columns 2-3; however, all are much smaller in magnitude than with self-employment. Overall, these results are as expected since paid-employment has less flexibility in terms of hours worked.

The results in Table 4 are especially notable for the differences in the birth-state residence coefficients in Panel A. Own birth-state residence has the largest positive coefficient on hours worked in self-employment for women with very young children. However, spouse birth-state residence hours worked coefficients are strongest for married women whose youngest children are ages 5-12 and 13-18. Interestingly, this suggests that childcare resources related to own birth-state residence are especially important for self-employed mothers of young children, but spousal birth-state resources are more important with older children. We can only speculate, but this may reflect the differing intensity of childcare needs for younger versus older children and self-employed mothers' willingness and ability to receive help from their networks versus their spouses' networks. Furthermore, this pattern is not found for paid-employed mothers in Panel B. The flexibility in self-employment makes hours worked for the self-employed

especially sensitive to childcare resources proxied by birth-state residence (of either the woman or her spouse).

4.3 Sensitivity Analysis

Because some of the previous literature (Garcia-Moran and Kuehn 2017) suggests that living away from family could lead to lower levels of fertility, we examine the relationships between migration and marriage and fertility using our data. As shown in Column 1 of Appendix Table A2, we find that, in our sample, women living in their home state are less likely to be married. Perhaps this means that women who do not migrate have a harder time finding a match; or it may result from reverse causality with marriage increasing out-migration, e.g., for tied movers. In Column 2, we condition on being married and find that married women are more likely to have children if they live in their home state. This is consistent with the previous research (Garcia-Morn and Kuehn 2017) and with the idea that access to family and friends is important to married women for having children.

There is also some possibility that women may have moved on their own earlier in life and that the birth-state out-migration decision is not exogenous (for example to go to college or for a pre-marriage job). Unfortunately, our data do not allow us to observe when a woman left her home state. To attempt to control for this, we add an indicator variable of whether or not the woman and her spouse are from the same state. We also interact that with the own birth-state dummy variable. The results are in Appendix Tables A3 and A4. In all cases, the results are similar to those in the Tables 2-4, suggesting that omitting this variable is not biasing our results.

Finally, Costa and Kahn (2000) suggest that couples in which both partners have a college degree are more likely to locate in large urban areas due to "colocation" problems that

are mitigated by moving to larger labor markets with better labor market opportunities for both partners. At the same time, however, Compton and Pollak (2007) argue that such "power couples" are not disproportionately likely to move to large cities, but instead that college graduate singles are especially likely to marry other college graduates in large cities to form power couples; thus, it could be that such couples are the result of pre-marriage location of men and women to urban areas. Either way, it could be that the labor market decisions of married, college-graduate women may be different in urban areas. To test this, we estimate our main models controlling for whether or not a woman lives in a metropolitan statistical area (MSA). As shown in Appendix Tables A5 and A6, the main results are unchanged. We also ran other alternatives for our main models (results not shown), including limiting the sample to just metropolitan areas, controlling for MSA size, and adding a large number of MSA fixed effects.[15] The main results were similar for all alternatives we considered.

While we cannot rule out the possibility of married mothers making endogenous location decisions based on their employment opportunities, the evidence here suggests that any resulting bias should be minimal for our main results. Our trailing spouse assumption should hold the bulk of the time for married mothers, especially for those with young children. Even if some married mothers make location decisions based on their own employment opportunities, it is not clear that this would differ between self-employment and paid-employment and between mothers with different aged youngest children. Any bias from married mothers making endogenous location decisions is likely to be small and overwhelmed in importance compared to childcare access. Our

[15] When including MSA fixed effects, we had to run either linear versions of our models with bootstrapped standard errors or probit/heckman models with conventional standard errors because the probit/heckman with bootstrapped standard errors was not estimable.

results are strongly consistent with birth-state out-migration influencing self-employment outcomes through reduced access to childcare from family and friends.

5. Conclusion

The current study examines how motherhood and migration relate to the self-employment outcomes of college-educated married women. Responsibility for arranging and providing childcare still falls heavily on mothers and greatly influences their employment decisions. Self-employment may be an especially attractive option for many mothers because it can allow them flexibility to set their own hours to align with childcare needs. At the same time, proximity to family may increase access to low-cost childcare and increase employment opportunities for mothers. Previous research has found that married couples usually migrate based on the employment opportunities for the male spouse, which often harms the employment opportunities of the wife, possibly because of reduced access to job networks or childcare networks. Thus, this study is particularly interested in how proximity to family affects the self-employment outcomes of college-educated married mothers, a question of major importance. The share of women in self-employment has been increasing, and businesses started by college graduates are especially likely to be successful. More women are now attending college than men, and women are likely to be a growing force among the college-educated self-employed for years to come.

We first document that college-educated married mothers of young children are more likely to be self-employed and especially unlikely to work in paid employment compared to other college-educated married women without children in the household and even compared to college-educated married mothers with older children. Among those who work, those with young children also work fewer hours, especially among the self-employed. This is consistent with

expectations that having young children strongly affects employment and self-employment decisions.

Using whether or not a woman lives in her birth state as a proxy for access to family and other support networks, we find that college-educated married mothers are more likely to be self-employed when they live away from home (in another state). Conditional on being self-employed, out-migrant mothers also work fewer hours compared to similar mothers, with the difference being strongest among mothers with young children in the household. These findings are consistent with out-migrant mothers having reduced access to childcare, and choosing self-employment for the flexibility in hours worked and ability to work fewer hours in order to achieve their desired balance between time devoted to family and work.

Notably, while residing outside her birth state strongly reduces a college-educated mother's likelihood of working in paid employment, it does not significantly reduce her hours worked conditional on choosing paid employment. This is consistent with paid-employment opportunities having limited flexibility in hours worked and many mothers with limited childcare access (from proximate family) having to choose either to withdraw from paid employment or accept its inflexible hours. Self-employment may be an attractive option that can increase their individual well-being relative to the alternatives. The businesses that they start and the economic value that they create can also benefit society more broadly.

Our analysis is not without limitations. Our use of birth-state residence as a proxy for proximity to family is admittedly imperfect and will induce some measurement error. However, we argue that the measurement error will likely attenuate coefficient estimates toward zero, making our coefficients conservatively estimated. Additionally, our analysis relies on assuming that the migration decisions of married mothers are driven by their spouses' employment

opportunities. While previous literature largely supports this, there is some literature suggesting that educated power couples choose labor markets jointly to solve a colocation problem. We cannot rule this out, but our results are robust to sensitivity analysis that attempts to control for the location decision and makes it likely that our trailing spouse assumption should hold the bulk of the time for married mothers with young children.

Our results suggest that childcare demands and resources play important roles in the employment and self-employment decisions of college graduate married mothers. Some mothers would certainly benefit from additional childcare access and likely increase their attachment to the workforce. However, many mothers use self-employment as an opportunity to balance work and family. While self-employed women may benefit from increased childcare access, there may be other scarce inputs and support services that could help mothers start businesses and succeed in self-employment, including access to mentors and networks of other self-employed mothers who can offer guidance. Communities may be able to take advantage of the talents of highly educated mothers by helping them to start and grow their businesses. As their businesses grow, they can facilitate positive spillovers into the local economy by creating new jobs and growing the networks of mentors and peers to support future self-employed women.

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Table 1: Sub-Sample Means for Primary Variables

	(1) Currently Married	(2) Married & Youngest Child 0-4	(3) Married & Youngest Child 5-12	(4) Married & Youngest Child 13-18
Self-employed	0.074	0.064	0.079	0.081
Paid-employed	0.775	0.741	0.758	0.771
Own birth-state residence	0.541	0.573	0.551	0.538
Spouse birth-state residence	0.513	0.535	0.520	0.511
Predicted spouse log income	11.107	11.060	11.215	11.227
Log hours of self-employed	3.225	2.959	3.157	3.258
Log hours of paid-employed	3.601	3.552	3.549	3.586
N	408,387	96,190	93,973	55,996

Note: Our analytical sample is limited to married women ages 25-59, born in the United States, and whose highest education is a bachelor's degree or higher.

Table 2: Results for the Sample of All Married Female College Graduates

	(1) Probability of Self-Employment	(2) Probability of Paid-Employment	(3) Hours Worked in Self-Employment	(4) Hours Worked in Paid-Employment
Youngest Child 0-4	0.012***	-0.173***	-0.495***	-0.113***
	(0.001)	(0.002)	(0.017)	(0.004)
Youngest Child 5-12	0.009***	-0.096***	-0.293***	-0.119***
	(0.001)	(0.002)	(0.013)	(0.003)
Youngest Child 13-18	0.000	-0.028***	-0.156***	-0.071***
	(0.001)	(0.002)	(0.011)	(0.003)
Own birth-state residence	-0.009***	0.036***	0.050***	-0.009***
	(0.001)	(0.001)	(0.010)	(0.002)
Spouse birth-state residence	-0.006***	0.025***	0.027***	-0.003
	(0.001)	(0.001)	(0.008)	(0.002)
Predicted spouse log income	0.015***	-0.111***	-0.177***	-0.069***
	(0.001)	(0.002)	(0.014)	(0.004)
Coefficient on the inverse mills ratio			-0.000	-0.192***
			(0.028)	(0.016)
N	408,387	408,387	408,387	408,387

Note: The sample is restricted to married female college graduates. The first two columns report the estimated marginal effects and the standard errors from probit estimations for self-employment and paid-employment dummy dependent variables, respectively. The omitted reference category for the youngest child dummy variables is no children in the household. The regressions also control for a quartic specification of age, and dummy variables for education level, college major, race/ethnicity, survey year, and state of birth. The estimates for these variables are suppressed for space conservation. Full regression results are available upon request. College major is excluded from the second stage of the Heckman procedure in Columns 3 and 4 with log hours worked in self-employment and paid-employment as the dependent variables, respectively. Bootstrapped standard errors are in parentheses.
*** $p < 0.01$.

Table 3: Probit Results for Self-Employment and Paid-Employment by Age of Youngest Child

	(1) Married & Youngest Child 0-4	(2) Married & Youngest Child 5-12	(3) Married & Youngest Child 13-18
A. Self-Employment Probability			
Own birth-state residence	-0.007***	-0.011***	-0.008***
	(0.002)	(0.002)	(0.002)
Spouse birth-state residence	-0.006***	-0.008***	-0.003
	(0.002)	(0.002)	(0.002)
Predicted spouse log income	0.010***	0.016***	0.018***
	(0.002)	(0.003)	(0.004)
B. Paid-Employment Probability			
Own birth-state residence	0.051***	0.045***	0.027***
	(0.003)	(0.003)	(0.004)
Spouse birth-state residence	0.038***	0.026***	0.020***
	(0.004)	(0.003)	(0.004)
Predicted spouse log income	-0.148***	-0.168***	-0.150***
	(0.004)	(0.004)	(0.003)
N	96,190	93,973	55,996

Note: All results in this table are estimated marginal effects. The dependent variable for Panel A is a self-employment dummy variable. The dependent variable for Panel B is a paid-employment dummy variable. The regressions also control for a quartic specification of age, and dummy variables for education level, college major, race/ethnicity, survey year, and state of birth. The estimates for these variables are suppressed for space conservation. Full regression results are available upon request. Bootstrapped standard errors are in parentheses. *** $p < 0.01$.

Table 4: Heckman Procedure Results for Log Hours Worked

	(1) Married & Youngest Child 0-4	(2) Married & Youngest Child 5-12	(3) Married & Youngest Child 13-18
A. Self-Employed			
Own birth-state residence	0.114***	0.032	0.035
	(0.026)	(0.024)	(0.025)
Spouse birth-state residence	0.011	0.055***	0.051*
	(0.025)	(0.021)	(0.028)
Predicted spouse log income	-0.274***	-0.237***	-0.220***
	(0.028)	(0.021)	(0.029)
Coefficient on the inverse mills ratio	0.042	0.060	-0.079
	(0.068)	(0.063)	(0.072)
B. Paid-Employed			
Own birth-state residence	0.005	-0.005	-0.002
	(0.005)	(0.004)	(0.006)
Spouse birth-state residence	0.007*	-0.001	0.003
	(0.004)	(0.005)	(0.005)
Predicted spouse log income	-0.072***	-0.125***	-0.122***
	(0.009)	(0.011)	(0.010)
Coefficient on the inverse mills ratio	-0.099***	-0.193***	-0.165***
	(0.033)	(0.040)	(0.036)
N	96,190	93,973	55,996

Note: The dependent variable for Panel A is log hours worked of the self-employed. The dependent variable for Panel B is log hours worked of the paid-employed. The regressions also control for a quartic specification of age, and dummy variables for education level, race/ethnicity, survey year, and state of birth. The estimates for these variables are suppressed for space conservation. Full regression results are available upon request. Bootstrapped standard errors are in parentheses.

* $p < 0.1$, *** $p < 0.01$.

Figure 1: Hours Worked Distribution for Self-Employed Married Women

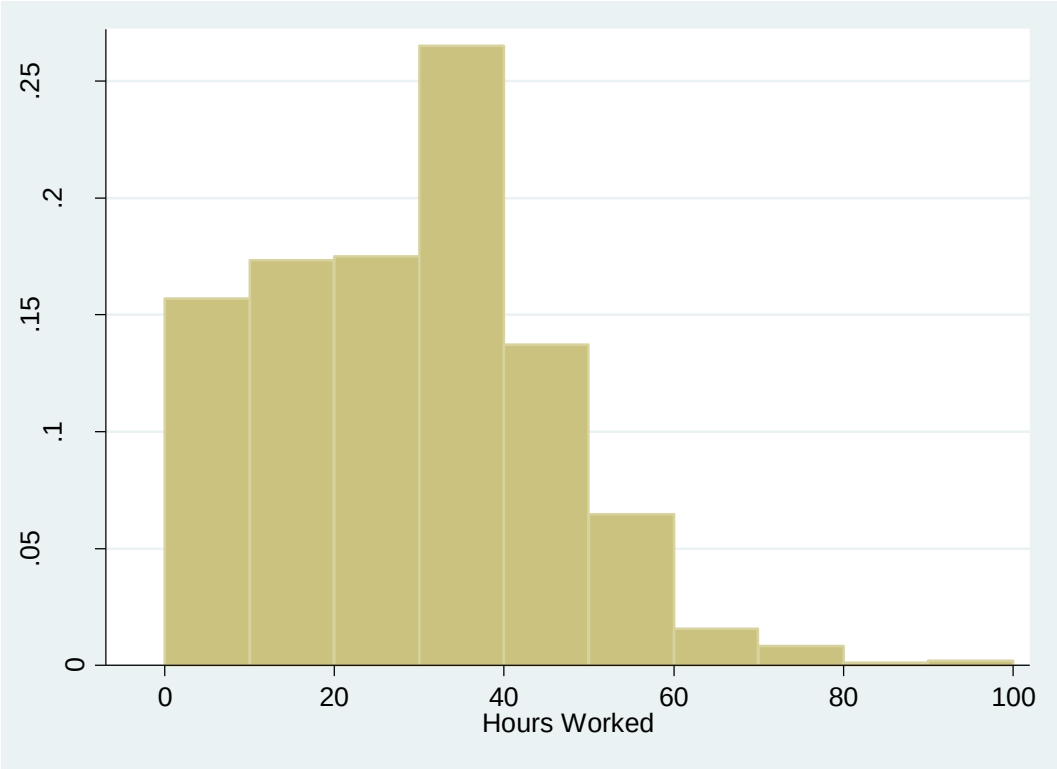
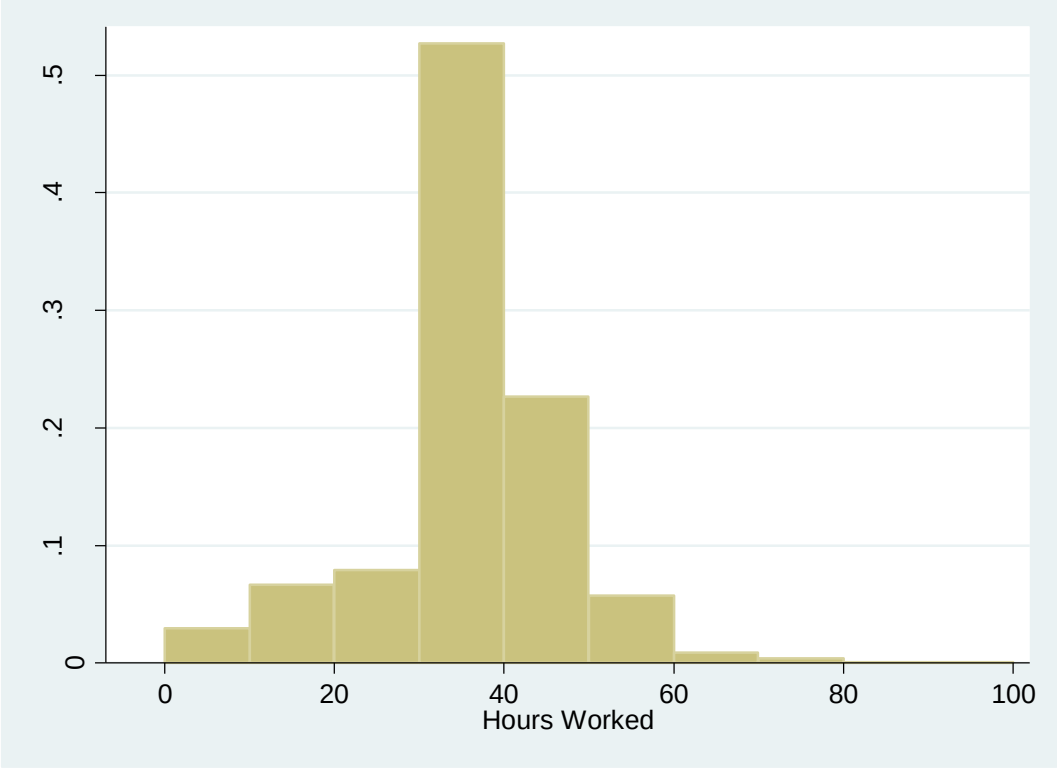


Figure 2: Hours Worked Distribution for Paid-Employed Married Women



Appendix

Table A1: Probit Results for Employment (versus not working at all)

	(1) Currently Married	(2) Married & Youngest Child 0-4	(3) Married & Youngest Child 5-12	(4) Married & Youngest Child 13-18
Youngest Child 0-4	-0.167***			
	(0.002)			
Youngest Child 5-12	-0.093***			
	(0.002)			
Youngest Child 13-18	-0.031***			
	(0.002)			
Own birth-state residence	0.027***	0.045***	0.034***	0.018***
	(0.001)	(0.003)	(0.003)	(0.003)
Spouse birth-state residence	0.019***	0.032***	0.019***	0.018***
	(0.001)	(0.002)	(0.003)	(0.004)
Predicted spouse log income	-0.096***	-0.139***	-0.153***	-0.133***
	(0.002)	(0.004)	(0.003)	(0.004)
N	408,387	96,190	93,973	55,996

Note: All results in this table are estimated marginal effects. The dependent variable is a dummy variable equal to one for persons who are employed (either in self-employment or paid-employment) and equal to zero for persons not working at all. The omitted reference category for the youngest child dummy variables in Column (1) is no children in the household. The regressions also control for a quartic specification of age, and dummy variables for education level, college major, race/ethnicity, survey year, and state of birth. The estimates for these variables are suppressed for space conservation. Full regression results are available upon request. Bootstrapped standard errors are in parentheses. *** $p < 0.01$.

Table A2: Probit Effects for Being Married and Having Children

	(1) Married	(2) Have Child(ren)
Own birth-state residence	-0.014***	0.030***
	(0.001)	(0.001)
Spouse birth-state residence		0.024***
		(0.001)
Predicted spouse log income		0.084***
		(0.002)
N	635,598	408,387

Note: All results in this table are estimated marginal effects. The Column (1) sample is restricted to female college graduates, and the dependent variable is a dummy variable equal to one if a woman is married. The Column (2) sample is restricted to married female college graduates, and the dependent variable is a dummy variable equal to one if a woman has at least one child. The regressions also control for a quartic specification of age, and dummy variables for education level, college major, race/ethnicity, survey year, and state of birth. The estimates for these variables are suppressed for space conservation. Full regression results are available upon request. Bootstrapped standard errors are in parentheses. *** $p < 0.01$.

Table A3: Probit Results with Control for Same State as Spouse

	(1) Married & Youngest Child 0-4	(2) Married & Youngest Child 5-12	(3) Married & Youngest Child 13-18
A. Self-Employment Probability			
Own birth-state residence	-0.009***	-0.009***	-0.008***
	(0.003)	(0.003)	(0.002)
Spouse birth-state residence	-0.008***	-0.005*	-0.004
	(0.002)	(0.003)	(0.003)
From the same home state as spouse	-0.010***	-0.007*	-0.007
	(0.003)	(0.004)	(0.005)
Interaction – same state * own state	0.011**	0.000	0.006
	(0.005)	(0.005)	(0.005)
Predicted spouse log income	0.010***	0.016***	0.018***
	(0.002)	(0.003)	(0.003)
B. Paid-Employment Probability			
Own birth-state residence	0.064***	0.050***	0.032***
	(0.003)	(0.003)	(0.005)
Spouse birth-state residence	0.052***	0.031***	0.027***
	(0.006)	(0.004)	(0.006)
From the same home state as spouse	0.011**	0.012**	0.002
	(0.005)	(0.005)	(0.007)
Interaction – same state * own state	-0.036***	-0.019**	-0.014
	(0.009)	(0.008)	(0.010)
Predicted spouse log income	-0.148***	-0.168***	-0.150***
	(0.004)	(0.003)	(0.005)
N	96,190	93,973	55,996

Note: All results in this table are estimated marginal effects. The dependent variable for Panel A is The dependent variable is a dummy variable equal to one for persons who are self-employed. The dependent variable for Panel B is a dummy variable equal to one for persons who work in paid-employment. The regressions also control for a quartic specification of age, and dummy variables for education level, college major, race/ethnicity, survey year, and state of birth. The estimates for these variables are suppressed for space conservation. Full regression results are available upon request. Bootstrapped standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A4: Heckman Log Hours Worked Results with Control for Same State as Spouse

	(1) Married & Youngest Child 0-4	(2) Married & Youngest Child 5-12	(3) Married & Youngest Child 13-18
A. Self-Employed			
Own birth-state residence	0.140***	0.040	0.026
	(0.033)	(0.031)	(0.033)
Spouse birth-state residence	0.039	0.066**	0.041
	(0.045)	(0.026)	(0.041)
From the same home state as spouse	0.063*	-0.040	0.039
	(0.035)	(0.036)	(0.051)
Interaction – same state * own state	-0.103	0.010	-0.008
	(0.068)	(0.056)	(0.084)
Predicted spouse log income	-0.274***	-0.238***	-0.219***
	(0.030)	(0.029)	(0.033)
Coefficient on the inverse mills ratio	0.041	0.062	-0.083
	(0.076)	(0.063)	(0.065)
B. Paid-Employed			
Own birth-state residence	0.003	-0.001	-0.005
	(0.008)	(0.007)	(0.008)
Spouse birth-state residence	0.005	0.004	0.000
	(0.007)	(0.006)	(0.008)
From the same home state as spouse	0.009	0.005	-0.015
	(0.007)	(0.007)	(0.010)
Interaction – same state * own state	-0.003	-0.012	0.016
	(0.013)	(0.012)	(0.015)
Predicted spouse log income	-0.072***	-0.125***	-0.121***
	(0.009)	(0.009)	(0.010)
Coefficient on the inverse mills ratio	-0.100***	-0.191***	-0.167***
	(0.036)	(0.031)	(0.034)
N	96,190	93,973	55,996

Note: The dependent variable for Panel A is log hours worked of the self-employed. The dependent variable for Panel B is log hours worked of the paid-employed. The regressions also control for a quartic specification of age, and dummy variables for education level, race/ethnicity, survey year, and state of birth. The estimates for these variables are suppressed for space conservation. Full regression results are available upon request. Bootstrapped standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A5: Probit Results with Metropolitan Control

	(1) Married & Youngest Child 0-4	(2) Married & Youngest Child 5-12	(3) Married & Youngest Child 13-18
A. Self-Employment Probability			
Own birth-state residence	-0.007***	-0.011***	-0.008***
	(0.002)	(0.002)	(0.002)
Spouse birth-state residence	-0.007***	-0.008***	-0.003
	(0.002)	(0.002)	(0.003)
Predicted spouse log income	0.011***	0.017***	0.017***
	(0.002)	(0.002)	(0.003)
Metropolitan status	-0.008***	-0.007***	0.004
	(0.002)	(0.003)	(0.003)
B. Paid-Employment Probability			
Own birth-state residence	0.052***	0.045***	0.026***
	(0.003)	(0.003)	(0.004)
Spouse birth-state residence	0.038***	0.025***	0.019***
	(0.003)	(0.003)	(0.004)
Predicted spouse log income	-0.149***	-0.166***	-0.147***
	(0.003)	(0.004)	(0.005)
Metropolitan status	0.007**	-0.019***	-0.021***
	(0.003)	(0.004)	(0.005)
N	96,190	93,973	55,996

Note: Metropolitan areas are identified using the 2013 definitions for metropolitan statistical areas (MSAs) from the U.S. Office of Management and Budget. Only MSAs where the sum of match errors is less than 20% (inclusive) are identified in our sample. Very similar results are obtained using MSAs where the sum of match errors is less than 15% (results are not reported). All results in this table are estimated marginal effects. The dependent variable for Panel A is a dummy variable equal to one for persons who are self-employed. The dependent variable for Panel B is a dummy variable equal to one for persons who work in paid-employment. The regressions also control for a quartic specification of age, and dummy variables for education level, college major, race/ethnicity, survey year, and state of birth. The estimates for these variables are suppressed for space conservation. Full regression results are available upon request. Bootstrapped standard errors are in parentheses. ** $p < 0.05$, *** $p < 0.01$.

Table A6: Heckman Log Hours Worked Results with Metropolitan Control

	(1) Married & Youngest Child 0-4	(2) Married & Youngest Child 5-12	(3) Married & Youngest Child 13-18
A. Self-Employed			
Own birth-state residence	0.112***	0.029	0.034
	(0.029)	(0.026)	(0.028)
Spouse birth-state residence	0.008	0.052***	0.044
	(0.028)	(0.018)	(0.029)
Predicted spouse log income	-0.264***	-0.223***	-0.207***
	(0.033)	(0.037)	(0.029)
Metropolitan status	-0.087***	-0.121***	-0.137***
	(0.027)	(0.020)	(0.030)
Coefficient on the inverse mills ratio	0.032	0.044	-0.087
	(0.088)	(0.060)	(0.072)
B. Paid-Employed			
Own birth-state residence	0.005	-0.006	-0.002
	(0.005)	(0.004)	(0.005)
Spouse birth-state residence	0.007	-0.002	0.003
	(0.005)	(0.005)	(0.005)
Predicted spouse log income	-0.072***	-0.123***	-0.122***
	(0.010)	(0.009)	(0.011)
Metropolitan status	0.003	-0.022***	0.001
	(0.005)	(0.006)	(0.005)
Coefficient on the inverse mills ratio	-0.100***	-0.188***	-0.163***
	(0.035)	(0.033)	(0.040)
N	96,190	93,973	55,996

Note: Metropolitan areas are identified using the 2013 definitions for metropolitan statistical areas (MSAs) from the U.S. Office of Management and Budget. Only MSAs where the sum of match errors is less than 20% (inclusive) are identified in our sample. Very similar results are obtained using MSAs where the sum of match errors is less than 15% (results are not reported). The dependent variable for Panel A is log hours worked of the self-employed. The dependent variable for Panel B is log hours worked of the paid-employed. The regressions also control for a quartic specification of age, and dummy variables for education level, race/ethnicity, survey year, and state of birth. The estimates for these variables are suppressed for space conservation. Full regression results are available upon request. Bootstrapped standard errors are in parentheses. *** $p < 0.01$.