Childcare Prices and Parental Employment Outcomes

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Abstract

The cost of childcare in the United States remains a salient barrier to full-time employment for parents, particularly parents of young children. However, estimating the true effect of childcare prices on parental labor outcomes faces empirical challenges due to reverse causality. In our study, we build on recent literature by using childcare regulations to instrument for prices. We update and expand the National Database on Childcare Prices and the Child Care Licensing Survey series through 2024. In our preliminary results, spanning 2014-2019, we find that higher childcare prices are associated with lower labor market participation rates for mothers of young children, but not of fathers. However, when childcare prices are high, both mothers and fathers are more likely to be in part-time or self-employment rather than full-time employment, and are more likely to work in occupations that require less experience and education. Mothers are more than twice as likely as fathers to enter self-employment over wage work in counties with high childcare costs. In a future revision, we will expand our analysis to 2022-2024, to compare estimates of the effect of childcare prices on employment in the post-COVID-19 pandemic years.

1 Introduction

Having a young child substantially impacts the labor market outcomes of parents, as they face a trade-off between paying for childcare or adjusting their work schedule so that they can care for their children themselves. In the United States, one of the few OECD countries without a universal childcare program or paid childcare leave, the challenge is compounded by high costs, varying quality, and limited availability. Overall, parents in the United States spend up to 16 percent of their income on full-time daycare (Poyatzis & Livingston, 2024). A survey of working age individuals finds that households across the income spectrum report the lack of access to childcare as the largest impediment to obtaining employment (Edmiston, 2019). Between 2020-2024, average national childcare prices have increased by 29 percent, seven percent more than inflation (Child Care Aware of America, 2025). Increasingly unaffordable childcare costs may drive parents to make different employment choices as they search for flexibility, fewer work hours, less demanding work, or to leave the labor force entirely.

In this paper, we examine and compare how childcare prices affect the employment outcomes of both mothers and fathers. Childcare market prices have been difficult to track and aggregate on a national level, as they vary considerably even within a state. In addition, the relationship between childcare prices and employment is subject to reverse causality. Childcare providers may charge more when there is more demand for their services, such as in areas where parents are more likely to maintain employment. Thus, we build on the work done by Araujo et al. (2025) and use variation in childcare regulations to instrument for childcare prices. We expand two databases: the National Database of Childcare Prices and the Child Care Licensing Survey series. From these, we create datasets of market prices at the county level and regulations at the state level, for 2013-2024. In our preliminary results using data from 2014-2019, we find that higher childcare costs decrease the labor force participation rates of mothers but not of fathers. For parents who remain employed, we find that higher childcare costs push mothers and fathers from full-time employment into part-time or self-employment. This effect on self-employment is nearly twice as strong for mothers as it is for fathers. We also find that, as costs increase, parents are more likely to work in occupations that require less education and experience. Conversely, this effect is stronger for fathers than for mothers.

An extensive body of literature examines the effect of childcare prices on labor market outcomes. In a cross-country review, Hegewisch and Gornick (2011) find higher childcare prices are associated with lower maternal labor market participation, and that this effect is generally stronger for lower-income women. They also find that costs, availability, and perceived quality all factor into maternal employment outcomes — not just prices alone. In the United States, early research largely relied on survey data related to childcare expenditures as a unified database of childcare market prices did not exist. Using this survey data, Anderson and Levine (1999a) find that the elasticity of labor force participation with respect to childcare costs ranges between -0.05 and -0.35 for mothers, with the elasticity largest for least skilled mothers and declining with skill. More childcare pricing data has become available in recent years. Using state-wide average market prices, Landivar et al.

(2022) find that mothers are more likely to be employed in states with less expensive childcare, although their study does not fully address the issue of reverse causality. Araujo et al. (2025) are able to provide causal estimates of the effect of childcare costs on maternal labor force participation using state regulations on childcare to instrument for prices. They find that mothers facing higher childcare costs are 0.6 to 1.4 percent less likely to be in the labor force.

Another strand of literature examines the effect of subsidized childcare on parental employment, circumventing the empirical challenges of using market price data. Approximately 22 percent of children younger than the age of 12 are covered by childcare subsidies, which are often in the form of vouchers that can be used to pay for private childcare tuition (Office of the Assistant Secretary for Planning and Evaluation, 2024). Separately, the federal government funds approximately 800,000 Head Start seats for children living at or below the poverty line. Head Start programs are implemented at the state and local level, following federal guidelines, and offer additional services such as meals, home visits and prenatal care. Research has found that low-income women who receive childcare subsidies are more likely to obtain employment (Anderson & Levine, 1999b; Tekin, 2007b). However, both programs fail to sufficiently cover all families in poverty: only 15 percent of eligible families actually receive subsidies and only 9 to 53 percent of eligible children have access to a Head Start seat (Office of the Assistant Secretary for Planning and Evaluation, 2024; U.S. Government Accountability Office, 2024). Some localities have also expanded universal preschool programs for 3- and 4-year-olds. The expansion of these programs appear to improve the employment probabilities of low-income mothers, but not high-income mothers, who simply switch their children from private to public preschool (Cascio & Schanzenbach, 2013). Notably, universal programs miss the earliest and most expensive years of childcare — childcare for infants up to early toddlers. Thus, studies that examine the expansion of state-funded childcare programs and subsidies fail to capture the full effect of high childcare costs on parental employment.

Our paper makes a substantive contribution to this literature in three ways. First, we estimate the effect of childcare prices on the employment outcomes of both fathers and mothers. The majority of the literature examines only the effect of childcare costs on maternal labor market outcomes. Historically, women have been much more likely to adjust their employment in response to childcare responsibilities. Prior research has found that male employment tends to be less sensitive to childcare costs and availability than female employment (Hegewisch & Gornick, 2011). This may not be true for the current generation of fathers, who spend 2.5 hours more per week on childcare in 2023 versus 2015 (Heggeness et al., 2025). The share of stay-at-home parents who are fathers has increased from 11 percent in 1989 to 18 percent in 2023 (Fry, 2023). Thus, we separately investigate the effect of childcare prices on maternal and paternal employment outcomes. We find that childcare prices do not effect the probability of fathers participating in the labor market. However, of already employed fathers, an increase in childcare prices is associated with an increase in the probability of being self- or part-time employed. Our results suggest that, while men may not be leaving the labor force in response to childcare costs, they are still adjusting their work hours and type of employment. Examining women in isolation may understate the overall effect of

increasing childcare prices on parental employment.

Second, to our knowledge, there are no papers that estimate the effect of childcare costs on the probability of self-employment in the United States. Most papers examine labor market participation or employment rates. However, parents may stay employed but choose employment options that allow for fewer work hours, including part-time and self-employment, which has implications for overall labor productivity. Tekin (2007a) and Ruppanner et al. (2019) use proxies for prices and estimate that higher costs increase the probability of part-time employment while decreasing the probability of full-time employment of mothers. Research on entrepreneurship suggests that childcare needs may drive women into self-employment. Women with families are more likely to enter self-employment (Wellington, 2006). Female entrepreneurs are more likely to express that they seek personal fulfillment, flexibility, and control (Morris et al., 2006). Once women have started their own businesses, they tend to work fewer hours. Gurley-Calvez et al. (2009) find that self-employed women work 14 fewer hours per week than self-employed men and wage-employed men and women. Instead, self-employed women spend up to 11 hours more per week on childcare. We find that increasing childcare costs drive both parents into self-employment from full-time employment, although this effect is nearly twice as large for mothers than for fathers.

Finally, we update and expand both the National Database of Childcare Prices (NDCP) and the Child Care Licensing Survey series through 2024. The earliest research using childcare market prices draw on state-level median market prices (Landivar et al., 2022). However, childcare costs vary significantly within states due to differences in costs-of-living between urban and rural areas. State-level estimates cannot capture within-state differences in pricing and affordability (Women's Bureau, U.S. Department of Labor, 2023). Araujo et al. (2025) draw on the NDCP and use the Child Care Licensing Survey series to instrument for prices, but limit their study to 2017, the final year of the series. In this preliminary version of the paper, we present our results for 2014-2019. In a future update, we will include results for 2022-2024, allowing us to compare any differences in the effect of childcare prices in the post-COVID-19 landscape. The updated results would be the only paper, to our knowledge, to examine the effect of childcare market prices on employment outcomes after the COVID-19 pandemic at the county-level. Many childcare centers closed due to loss of revenue during pandemic-related shutdowns; childcare employment is still six percent lower than prior to the pandemic (Bick et al., 2023). The employment landscape has changed as well, with an increase in the availability of remote work.

In the following section, we provide descriptive statistics and an overview of our data sources. In section three, we discuss our methodology and our attempt to address the issue of reverse causality. In section four, we provide preliminary results. In section five, we conclude with a discussion of policy implications.

2 Data

We draw on the American Community Survey (ACS) for a sample of working age parents of young children. We combine the ACS with data on wages and employment counts from the Bureau

of Labor Statistics, and data on occupational characteristics from the Occupational Information Network (O*NET), such as skill level and required experience. We also leverage data from the U.S. Census Bureau to obtain the working age population for each county. RGDP by county is obtained from the U.S. Bureau of Economic Analysis. Finally, we expand the National Database of Childcare Prices (NDCP) and build on two series of the Child Care Licensing Survey and current data from the National Database of Child Care Licensing Regulations. We create a county-level database of childcare market prices and state-level childcare regulations spanning from 2013-2024. In Appendix A, we provide a detailed description of the counties included in our dataset.

2.1 American Community Survey

We use the American Community Survey as provided by IPUMS USA for individual-within-household data. The ACS data are obtained by surveys to households. IPUMS then harmonizes these data and their variables across time. For this first version of our paper, we use the five-year samples from 2014-2019. A subsequent version will include data from 2022-2024. We restrict the sample to only using working age individuals, defined as individuals between 16-65 years old. We then filter out all individuals who do not have a child younger than five years old in their household. This is the sample of people we expect to be most impacted by childcare prices and availability. We then filter out Childcare Workers, or individuals with a Standard Occupation Classification (SOC) code of 39-9011. Their employment directly affects childcare prices and availability, biasing estimates.

The ACS data contain the demographic controls and employment status variables, including gender, highest education attained, race, marital status, employment status, and labor force participation. A family's total pre-tax income for the previous year is available at the household level, and we adjust it for inflation with a base of 2014 dollars. We can also delineate if an employed individual works part-time for a wage, full-time for a wage, or is self-employed. An individual is considered to be working part-time if the number of hours they usually work per week is less than 35 and they work for wages. An individual is considered to be working full-time if the number of hours they usually work per week is 35 or greater and they work for wages. An individual is classified as self-employed if they spend the most time working for their own enterprise.

We combine county and state FIPS codes from the ACS dataset to create a five-digit identifier for every county in the United States. Using this code in conjunction with survey year, we are able to join to external data sources. We leverage the dataset's SOC codes to merge in occupation characteristics. For survey years prior to 2018, the SOC codes follow the 2010 SOC methodology. For years after 2017, the codes follow the 2018 methodology.

There are instances of SOC codes in the ACS data that do not match external occupation data sources. First, there are codes that have a major group (first two digits of the SOC code) of 55, and these are for those in the military. Second, individuals with a major group of 99 are unemployed. Third, individuals with a major group of 0 are not in the labor force. Individuals with these codes do not have occupation characteristics. There are then cases where an SOC code

is composed of various Census occupation codes; they are coded as some variation of "23-45XX." We impute occupation characteristics for these cases by joining to the occupation data on the first four characters of the SOC code, i.e., the major and minor groups. As a final "catch-all" attempt, we join anything that doesn't match on the full SOC code nor the first four characters on just the first two characters, i.e., the major group.

2.2 Other Sources

A number of key variables are obtained from U.S. Bureau of Labor Statistics data sources. We obtain counts of total employment and childcare worker employment by county by year from the Quarterly Census Employment Wage survey (QCEW). These are administrative data collected from state unemployment insurance programs (U.S. Bureau of Labor Statistics, 2025b). For childcare employment, we pull the counts in each county-year combination with an NAICS (industry) code of 6244, which covers "Child Day Care Services." To obtain total employment by county and year, we use the QCEW code of 10 which captures the employment across all industries.

We pull population counts from U.S. Census Bureau data tables. We create a working age population variable by gathering the counts of people aged 15-64 by county by year, as the Census provides population counts in 5-year bins. With this, we create a job density variable defined as the number of people employed across all industries (per the BLS) in a county divided by the number of working age people living in that county during that year. We also gather the number of children younger than five by county by year from this dataset. We then create an index of the number of childcare employees per child younger than five by county by year. Finally, we calculate RGDP growth rates by county by year from RGDP data obtained from the U.S. Bureau of Economic Analysis (of Economic Analysis, 2025).

2.3 The Occupational Information Network

The Occupational Information Network (O*NET) database contains information and characteristics on over 55,000 jobs (National Center for O*NET Development, 2025). These characteristics include topics such as job zones (the amount of preparation in terms of experience and education needed for an occupation), abilities needed for a job, and styles of working. The key identifier for these data is the 2018 SOC code. We use this code to join the ACS data for ACS years 2018 and later. For years prior to 2018, we crosswalk the 2018 codes to 2010 codes and merge accordingly.

2.4 National Database of Childcare Prices

The National Database of Childcare Prices (NDCP), compiled by the U.S. Department of Labor Women's Bureau, aggregates data from state market rate surveys. Market rate surveys are conducted by each state every 1-3 years, as mandated by the Administration for Children and Families at the U.S. Department of Health and Human Services. The market rate surveys are used to inform rate-setting policies for childcare subsidies.

Most states survey both regulated childcare centers and regulated family childcare homes, which

represent childcare providers who care for a small, mixed-age group of children in a residential building. Some, but not all, states collect and report the data at the county-level. Prices are reported for various age groups, representing infants, toddlers, preschool, and school-age children, although the exact ages that define these categories vary according to state regulations. The NDCP reports full-time — defined as 40 hours per week, 5 days per week, and 52 weeks per year — weekly prices at the 50th and 75th percentiles.

The most recent edition of the NDCP was released in 2024 and provides data from 2008-2022. We are currently drawing on state market rate surveys to expand the database through 2024. We use the same imputation methods as the NDCP where states are missing data, aggregate data above the county level, or vary in the definition of age groups and the mode in which prices are reported. The NDCP notes that 80% of the price data have at least one type of imputation. A detailed description of these imputation measures will be provided in the future update.

Not all counties are covered in the NDCP dataset. For example, New Mexico and Indiana do not report market rates and are not included in any years in the dataset. New York began reporting market rates only in 2019, so 2018 data is imputed from the 2019 market rate surveys, but data is missing for 2014-2017. Other states, such as Alaska and Missouri, only report data for a limited number of (more populated) counties. In Appendix A, we describe the data coverage available in the 2022 edition of the NDCP dataset.

For our analysis, we use median prices for toddler care at childcare centers. The NDCP defines toddler as ages 24-35 months, although 49% of counties include 18-23 months in this price category. We choose the toddler category to avoid the issue of varying parental leaves, which primarily affects infants, and the expansion of universal pre-K for four-year-olds and 3-K for three-year-olds. To our knowledge, there are no states that require greater than two years of paid parental leave, or that have implemented universal childcare for two-year-olds. However, parental leave policies vary at the employer level and are subject to state regulations, so it is possible (although unlikely) that some parents in our dataset are able to combine or extend paid parental leave for over two years. Following Araujo et al. (2025), we use prices for center-based care rather than home-based care. As of 2019, of the 59% of children under the age of five receiving non-parental care, 62% are in center-based care (Cui & Natzke, 2021).

In Figure 1, we provide the median weekly price for center-based care for toddlers for each county from 2014-2019, the current time period of our analysis. In a future revision, we will provide median weekly prices for each county from 2014-2024. Prices have been adjusted for inflation using the consumer price index, with 2014 as the base year. There is significant variation across counties. For example, the median childcare cost in the most expensive counties (excluding the District of Columbia), Middlesex and Norfolk Counties in Massachusetts, was $444.43 per week, compared to $22.80 per week in Mercer County, Missouri. There was also significant variation among counties within a state. The most affordable counties in Massachusetts, for example, were Berkshire, Franklin, Hampden, and Hampshire Counties, where the median weekly price of childcare for toddlers between 2014-2019 was $286.39, about 64 percent of the price of childcare in Middlesex

and Norfolk counties.

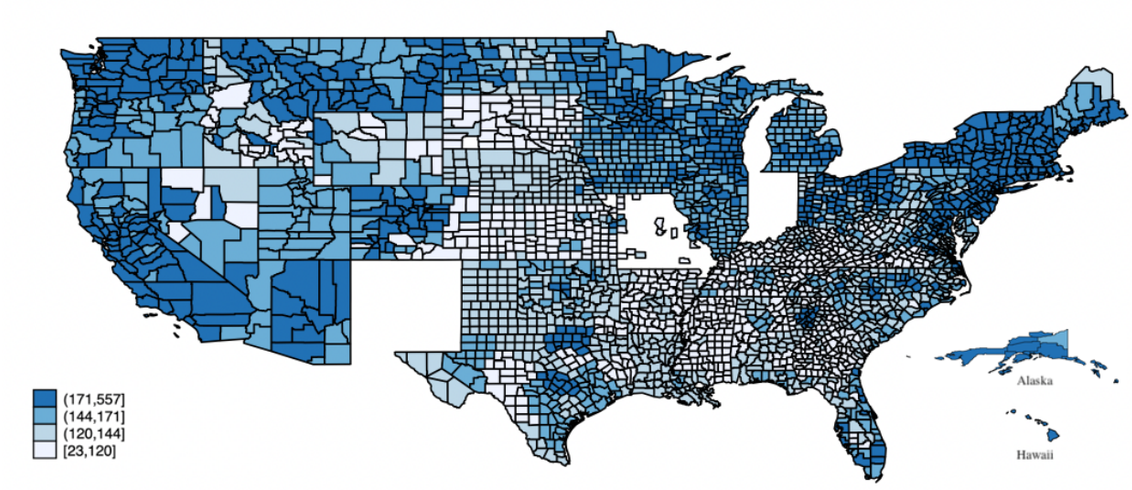


Figure 1: Median weekly inflation-adjusted price of center-based care for toddlers by county, over 2014-2019.

2.5 The Child Care Licensing Studies

Childcare regulations are largely determined at the state-level, although the federal government sets some health and safety standards for Head Start and other subsidized programs. Regulations impose minimum requirements on teacher education, experience and ongoing training, staff-to-child ratios, physical space requirements such as minimum square feet per child, and other health and safety standards. Regulation and licensing stringency vary across states and over time. As with childcare prices, we focus on childcare centers, which are generally subject to more stringent regulations than home-based care providers.

We build on work by Araujo et al. (2025) and Hotz and Xiao (2011) who demonstrate that childcare regulations are strongly associated with childcare prices and the quality and number of childcare centers (a proxy for supply). We use regulations for maximum staff-to-child ratios, whether or not teachers and directors are required to have a high school diploma or equivalent education, and the minimum number of pre-service and ongoing training courses that staff are required to take. Smaller staff-to-child ratios, for example, would require hiring additional staff, increasing the costs of running a child care center and therefore the prices charged to parents.

We combine and expand data provided by the National Association for Regulatory Administration (NARA) and the National Database of Child Care Licensing Regulations. Beginning in 2004, NARA has compiled data on state licensing policies obtained via the NARA Child Care Licensing Programs and Policies Survey. They have also compiled data on child care regulations obtained from the National Database of Child Care Licensing Regulations. Together, the compiled data was published in the Child Care Licensing Survey series. We use the 2012-2014 and 2017 series, supplemented with 2023 data on child care regulations from the National Database of Child Care Licensing Regulations. Both NARA's data and data from the National Database of Child Care Licensing Regulations are collected and posted at intervals. To fill in missing years, e.g. 2015-2016, 2018-2022 and 2024, we searched individual state administrative codes for the latest child care

regulations as well as a history of amendments. We supplemented our search using Lexis Nexis and the Legal Information Institute at Cornell University for archived versions of administrative codes and amendment history when not otherwise available. The final result is a balanced panel dataset with state-level detail on childcare center regulations from 2014-2024.

3 Methodology

We estimate the effect of childcare prices on labor market participation rates, employment type, and occupational characteristics. Our models include variables at the individual, county, and state levels. To handle serial correlation among individuals who live in the same county and state, we choose probit and unordered multinational probit models over logit models. ACS data is collected at the household level, so we also expect serial correlation among individuals living in the same household. We address this by splitting the data into two samples based on the parent's gender. Examining only the labor market outcomes of each parent separately avoids the empirical challenges of parsing intra-household effects. For example, the bargaining between partners over the division of responsibility between market work and caring for their child affects employment choices but cannot be adequately captured in the data. Finally, we use the control function method to address endogeneity in childcare prices. We discuss the first stage regression and instrumental variables used in the following section.

3.1 Addressing Reverse Causality

Childcare prices and labor market outcomes are subject to reverse causality. We are interested in the effect of childcare prices on employment. We hypothesize that higher childcare prices lead parents to change their employment decisions. This change could be leaving the labor force or dropping to part-time hours to have more flexibility for childcare. However, it is likely that the reverse effect is also true. Parents who wish to stay employed would be more likely to pay for childcare. As demand for childcare increases, childcare prices increase.

To address the issue of reverse causality, we leverage the control function method as described by Wooldridge (2015). We first estimate a linear regression where a county's childcare prices are the regressand. The regressors — or instruments — we use are state regulations. Regulations drive prices by setting a minimum standard for "quality," defined as the ratio of children to staff and minimum staff education requirements and training. Requiring better educated staff or more staff to supervise a group of children would increase the costs for childcare centers, which increases prices for parents. However, state regulations themselves are not statistically significant drivers of parental employment (Araujo et al., 2025). The control function method differs from a standard instrumental variables regression in that we use both the residuals from this first stage equation and the price variable in the outcome equation. If our instrumental variables are sufficient, the residuals will capture the correlation between childcare prices and the disturbance term of the outcome equation.

Equation 1 contains the first stage equation. W represents the collection of instruments for

childcare prices (P). The county level is represented by z, and the state level is represented by Z. Time is annual and represented by t. We follow the work done by Hotz and Xiao (2011) and Araujo et al. (2025), who use a combination of state regulations representing staff-to-child ratio maximums and required teacher education and/or training. For the latter variable, we create dummy variables equal to 1 if teachers, directors, or both are required to have high school diplomas in state Z. This sum of dummies is represented by D. For the former, we take the average maximum number of children across age groups per teacher, i.e., the average staff-to-child ratio. This is R. Finally, we count the number of health and safety trainings that are required for childcare staff. This variable is S. In a future revision, we intend to use additional controls.

We have four separate samples on which we need to use this control function approach. The first two are male-only and female-only parents of children under the age of five that are either in or out of the labor force. The second two samples are male-only and female-only parents of children under the age of five that are employed.

$$\begin{aligned} P_{zt} &= W'\gamma + \eta_{zt} \\ W &= (D_{Zt}, S_{Zt}, R_{Zt}, G_{Zt}, Q_{Zt})' \end{aligned} \tag{1}$$

After we run the first stage models, we obtain $\hat{\eta}$, which we use in the outcome equations discussed in the next section.

A priori, there should be no differences in these first stage results between the male and female samples. The small differences seen in the magnitudes are likely to do different sample sizes. Directionally, the variables have sensible effects. If instructors are required to have training or certain levels of education, then prices should increase. If the number of children per teacher increases, then prices should decrease.

Table 1: 1st Stage Control Function Method Results - Entire Sample

Variable Name	Male Coefficient (Std. Error)	Female Coefficient (Std. Error)
Intercept	5.90*	5.89*
	(0.0012)	(0.0011)
HS Diploma Required	0.10*	0.099*
	(0.00038)	(0.00036)
Safety Training	0.0026*	0.0038*
	(0.00012)	(0.00011)
Teacher-to-Child Ratio	-0.094*	-0.093*
	(0.00010)	(0.000097)
Observations:	1,109,530	1,307,258
Population Size:	26,400,388	31,650,351
R-squared:	0.40	0.40
Note: * signifies statistically significant at the 5% level.		

Table 2: 1st Stage Control Function Method Results - Employed Only

Variable Name	Male Coefficient (Std. Error)	Female Coefficient (Std. Error)
Intercept	5.90*	5.87*
	(0.0012)	(0.0014)
HS Diploma Required	0.11*	0.098*
	(0.00039)	(0.00045)
Safety Training	0.0024*	0.0061*
	(0.00012)	(0.00013)
Teacher-to-Child Ratio	-0.093*	-0.093*
	(0.00011)	(0.00012)
Observations:	1,021,226	814,796
Population Size:	24,153,416	19,539,481
R-squared:	0.40	0.39
Note: * signifies statistically significant at the 5% level.		

3.2 Empirical Methods

We use probit regressions to examine labor force participation and the likelihood of choosing self-employment versus wage employment. We use unordered multinomial probit regressions to investigate self-employment or part-time employment choices against full-time employment and the amount of prior preparation needed (i.e., job zone) for an individual's occupation.

These models include the individuals' covariates as well as regional covariates of the individuals' locations. In an effort to control for regional fixed effects, we include a county's RGDP growth rate for each year. We also include job density for each county-year combination as, in theory, that should impact employment outcomes. We use a log-transformation of the median market toddler childcare prices. Finally, we create an index of childcare availability; this is defined as the number of childcare employees per children younger than five years old in a county.

Equation 2 is the second stage multinomial probit model. U_{ij} is the utility for individual i from choosing alternative j. For the employment-centric model, the set of alternatives consists of full-time employment, part-time employment, and self-employment. For the model examining occupation characteristics, the alternatives are different levels of preparation required for a job. X_{it} is an individual's characteristics, P is childcare price, A is childcare availability, and R is an individual's county's characteristics. $\hat{\eta}$ represents the residuals from the first stage regression.

$$\begin{aligned} U_{ij} &= X'_{it}\beta_j + C'_{zt}\gamma_j + \hat{\eta}_{zt} + \epsilon_{ijtz} \\ C_{zt} &= (P, A, R)' \\ \epsilon_{ijtz} &\sim N(0, \Sigma) \\ \epsilon_{ijtz} &= \mu_i + \lambda_t + \omega_z + \nu_{ijtz} \end{aligned} \tag{2}$$

4 Pre-COVID Results

We find that mothers are more likely to leave the labor force when faced with higher childcare prices, but fathers are not. We also find that higher prices increase the likelihood of a parent (both mothers and fathers) to choose self-employment or part-time employment, perhaps due to more

flexibility in these arrangements. In the case of self-employment, these effects are almost twice as high for mothers than they are for fathers.

The results tables below focus only on the primary variables of interest, i.e., childcare prices and childcare availability. For the sake of simplicity, we do not include the results for the individual and regional controls in these tables, but Tables 9 and 10 in Appendix B have the full results. These controls include: marriage status (with married as the base), race (with white as the base), education (with high school diploma only as the base), family total income adjusted to 2014 dollars and binned (with \$0-\$50,000 as the base), the number of generations living in the household (with two generations as the base), job density of the individual's county, and the RGDP growth rate of the individual's county.

4.1 Labor Force Participation

The labor force participation results reinforce what has been found in the literature. Table 3 contains the results of our analysis. Childcare prices and availability do not have a statistically significant effect on the father's decision to be a part of the labor force. For mothers, higher childcare prices reduce the likelihood of them being in the labor force, but availability still is not statistically significant. This difference between mothers and fathers is likely due to the traditional division of parenting responsibilities. When childcare prices are higher, mothers tend to leave the labor force to care for the child themselves.

Table 3: Labor Force Participation Results

Variable Name	Male Coefficient (Std. Error)	Female Coefficient (Std. Error)
log(Childcare Prices)	-0.0082	-0.081*
	(0.013)	(0.0073)
CC Availability Index	0.29	1.96
	(0.16)	(0.090)
CF Residuals	-0.15*	0.22*
	(0.020)	(0.011)
Controls		
Observations:	1,109,530	1,307,258
Population Size:	26,400,388	31,650,351
Note: * signifies statistically significant at the 5% level.		

4.2 Employment Outcomes

Our results for employment outcomes show a stronger difference between parents' choices based on childcare prices and availability. Table 4 contains the results for a probit regression examining the likelihood of an employed parent choosing self-employment versus wage employment. The effect of prices is almost twice as large for women as for men. Higher prices increase the likelihood for both men and women to choose self-employment, perhaps capturing the flexibility it provides. As childcare availability increases, the likelihood of choosing self-employment decreases. This is likely due to more available childcare slots, allowing parents to have more freedom to set their work schedules.

Table 4: Wage Employment vs. Self-Employment Results

Variable Name	Male Coefficient (Std. Error)	Female Coefficient (Std. Error)
log(Childcare Prices)	0.095*	0.17*
	(0.011)	(0.013)
CC Availability Index	-0.90*	-1.41*
	(0.13)	(0.17)
CF Residuals	-0.18*	-0.39*
	(0.017)	(0.021)
Controls		
Observations:	1,021,226	814,796
Population Size:	24,153,416	19,539,481
Note: * signifies statistically significant at the 5% level.		

In Table 5, we break out part-time wage employment. We then use an unordered multinomial probit model to see how self-employment and part-time wage employment compare to full-time wage employment. Again, the impact of childcare prices on a mother's likelihood to choose self-employment over full-time wage employment is about twice that of a father's. For fathers specifically, higher childcare prices are more strongly associated with part-time employment instead of self-employment.

Table 5: Self-Emp., Part-Time Emp. vs. Full-Time Emp. Results

Variable Name	Male Coefficient (Std. Error)	Female Coefficient (Std. Error)
Self-Employment		
log(Childcare Prices)	0.17*	0.33*
	(0.015)	(0.018)
CC Availability Index	-1.44*	-2.39*
	(0.18)	(0.23)
CF Residuals	-0.24*	-0.42*
	(0.023)	(0.028)
Part-Time Wage Employment		
log(Childcare Prices)	0.36*	0.33*
	(0.019)	(0.014)
CC Availability Index	-2.26*	-1.89*
	(0.24)	(0.17)
CF Residuals	0.079*	0.26*
	(0.028)	(0.021)
Controls		
Observations:	1,021,226	814,796
Population Size:	24,153,416	19,539,481
Note: * signifies statistically significant at the 5% level.		
The base outcome is Full-Time Wage Employment.		

Table 6 examines how childcare prices and availability affect the preparation needed for the parents' occupations. Across all job zones, higher costs are associated with parents working in occupations that require less preparation. It is curious, though, that higher childcare availability increases the likelihood of an individual choosing a job that does not require extensive preparation. It may be that locales with more childcare slots have proportionally more occupations in the lower job zones. We intend to investigate this further for our next iteration of our analysis.

Table 6: Job Zone Results

Variable Name	Male Coefficient (Std. Error)	Female Coefficient (Std. Error)
Little-No Prep Needed		
log(Childcare Prices)	0.32*	0.26*
	(0.024)	(0.025)
CC Availability Index	4.97*	0.78*
	(0.30)	(0.31)
CF Residuals	-0.71*	-0.52*
	(0.036)	(0.038)
Some Prep Needed		
log(Childcare Prices)	0.11*	0.040*
	(0.017)	(0.018)
CC Availability Index	5.04*	1.26*
	(0.22)	(0.23)
CF Residuals	-0.29*	-0.13*
	(0.027)	(0.029)
Medium Prep Needed		
log(Childcare Prices)	0.13*	0.10*
	(0.018)	(0.019)
CC Availability Index	5.08*	2.52*
	(0.23)	(0.24)
CF Residuals	-0.40*	-0.19*
	(0.027)	(0.030)
Considerable Prep Needed		
log(Childcare Prices)	0.18*	0.11*
	(0.017)	(0.018)
CC Availability Index	5.41*	3.00*
	(0.22)	(0.23)
CF Residuals	-0.41*	-0.29*
	(0.026)	(0.029)
Controls		
Observations:	1,011,698	813,541
Population Size:	23,959,326	19,511,385

Note: * signifies statistically significant at the 5% level.
The base outcome is "Extensive Prep Needed."

Overall, childcare prices and availability have a notable impact on parents' labor outcomes and decisions. This impact is typically greater for mothers than for fathers. As prices increase, parents are more likely to move into a more flexible type of employment, such as self-employment or part-time employment. As availability increases, parents tend to move toward full-time employment. Greater childcare availability enables parents to choose the childcare arrangement that suits their employment needs.

4.3 Robustness Checks

We intend to conduct two robustness checks in the next iteration of this work. First, we plan to switch out prices and availability to see how their effects may change in the absence of the other. Second, we plan to run this analysis on state-level prices and availability. Although the detail provided at the county-level is preferred given the variation within states of prices and affordability, using state-level prices would increase our coverage. It would be interesting to see if there are significantly different results at the state level.

5 Conclusion

In the United States, access to affordable, high-quality childcare continues to play a large role in the labor market and employment outcomes of parents. We find that higher childcare prices reduce the labor force participation rates of mothers of young children, but not fathers. These findings confirm a large literature that examines how men and women balance work and family. As in prior studies, we confirm that when childcare becomes more costly, mothers are more likely to leave the labor force entirely. For fathers, the choice to work does not appear to be sensitive to childcare prices.

However, our results suggest that fathers do adjust their work hours in response to childcare responsibilities. When prices increase, fathers are almost as likely as mothers to be in part-time employment rather than full-time employment. We also find that, as childcare becomes more costly, mothers are nearly twice as likely as fathers to enter self-employment rather than full-time employment. Finally, we find that both fathers and mothers are more likely to work in occupations that require the least amount of skills and experience compared to occupations that require significant preparation.

Our findings have implications for the broader economy. It is likely that prior estimates on the overall impact of childcare costs on the labor market are understated. Much of the existing literature focuses on female labor market participation or employment rates. This fails to capture the reduction in parental labor hours and labor productivity that occurs when parents, including fathers, stay employed but work in part-time or self-employment rather than full-time wage employment.

In particular, prior research on entrepreneurship has found that self-employed women work fewer hours than self-employed men, or wage-employed women and men (Gurley-Calvez et al., 2009). Our findings imply that this difference in hours worked may be due to higher childcare costs. If they cannot afford full-time childcare, full-time wage-employed women would search for alternative work arrangements, such as self-employment, that can offer more flexible schedules and family accommodations. Since they are driven to entrepreneurship for non-pecuniary motives, they may run firms that are smaller, less profitable and less productive.

In 2022, more than a third of parents of young children reported being out of work because they lacked childcare (Eggleston et al., 2023). Our paper suggests that the issue of childcare is not limited to mothers, or to labor force participation rates. High childcare prices impact the employment outcomes of both mothers and fathers and affects the productivity of both wage-employed workers and self-employed workers.

References

Anderson, P., & Levine, P. (1999a, March). *Child care and mothers' employment decisions* (Working Paper No. 7058) (Accessed: 2025-12-05). National Bureau of Economic Research. https://doi.org/10.3386/w7058

Anderson, P., & Levine, P. (1999b). *Child care and mothers' employment decisions* (NBER Working Papers No. 7058). National Bureau of Economic Research, Inc. https://EconPapers.repec.org/RePEc:nbr:nberwo:7058

Araujo, V., McBride, L., & Sandler, D. H. (2025, April). *The impact of childcare costs on mothers' labor force participation* (Working Papers No. 25-25). Center for Economic Studies, U.S. Census Bureau. https://doi.org/None

Bick, A., Gregory, V., & Leukhina, O. (2023, July). How child care impacts parents' labor force participation [Accessed: 2025-12-05]. https://www.stlouisfed.org/on-the-economy/2023/jul/how-child-care-impacts-parents-labor-force-participation

Cascio, E. U., & Schanzenbach, D. W. (2013, December). *The impacts of expanding access to high-quality preschool education* (Working Paper No. 19735). National Bureau of Economic Research. https://doi.org/10.3386/w19735

Child Care Aware of America. (2025, May). Child care in america: 2024 price & supply [Accessed: 2025-12-05]. https://www.childcareaware.org/price-landscape24/

Cui, J., & Natzke, L. (2021). *Early childhood program participation: 2019* (tech. rep. No. NCES 2020-075REV). National Center for Education Statistics, U.S. Department of Education. https://nces.ed.gov/pubs2020/2020075REV.pdf

Edmiston, K. D. (2019). Why aren't more people working in low- and moderate-income areas? https://www.kansascityfed.org/Economic%20Review/documents/919/2019-Why%20Aren%E2%80%99t%20More%20People%20Working%20in%20Low-%20and%20Moderate-Income%20Areas%3F.pdf

Eggleston, C., Mayol-Garcia, Y. H., Meyers, M., & Garcia Trejo, Y. (2023, November). Most parents don't have any formal child care arrangements: About 1 in 5 parents relied on a relative for child care. https://www.census.gov/library/stories/2023/11/child-care.html

Fry, R. (2023, August). Almost 1 in 5 stay-at-home parents in the u.s. are dads. https://www.pewresearch.org/short-reads/2023/08/03/almost-1-in-5-stay-at-home-parents-in-the-us-are-dads/

Gurley-Calvez, T., Biehl, A., & Harper, K. (2009). Time-use patterns and women entrepreneurs. *American Economic Review*, *99*(2), 139–44. https://doi.org/10.1257/aer.99.2.139

Hegewisch, A., & Gornick, J. (2011). The impact of work-family policies on women's employment: A review of research from oecd countries [Accessed: 2025-12-05]. *Community, Work & Family*, *14*(2), 119–138. https://doi.org/10.1080/13668803.2011.571395

Heggeness, M., Bommarito, J., & Prewitt, L. (2025). *The care board: Version 1.5* [Dataset]. Lawrence, KS, Kansas Population Center. https://thecareboard.org

Hotz, V. J., & Xiao, M. (2011). The impact of regulations on the supply and quality of care in child care markets [Accessed: 2025-12-05]. *American Economic Review*, *101*(5), 1775–1805. https://doi.org/10.1257/aer.101.5.1775

Landivar, L. C., Scarborough, W. J., Collins, C., & Ruppanner, L. (2022). Do high childcare costs and low access to head start and childcare subsidies limit mothers' employment? a state-level analysis [Accessed: 2025-12-05]. *Social Science Research*, *102*, 102627. https://doi.org/10.1016/j.ssresearch.2021.102627

Morris, M., Miyasaki, N., Watters, C., & Coombes, S. (2006). The dilemma of growth: Understanding venture size choices of women entrepreneurs. *Journal of Small Business Management*, *44*, 221–244. https://doi.org/10.1111/j.1540-627X.2006.00165.x

National Center for O*NET Development. (2025). O*NET OnLine [Accessed: 2025-12-07].

of Economic Analysis, U. B. (2025). Cagdp1 county and msa gross domestic product (gdp) summary.

Office of the Assistant Secretary for Planning and Evaluation. (2024, September). *Estimates of child care subsidy eligibility and receipt for fiscal year 2021* (Data Point / Report) (Accessed: 2025-12-05). U.S. Department of Health and Human Services. https://aspe.hhs.gov/sites/default/files/documents/a91fd97aa80b53fa52a52d38cd323509/cy2021-child-care-subsidy-eligibility.pdf

Poyatzis, G., & Livingston, G. (2024, November). New data: Childcare costs remain an almost prohibitive expense [Accessed: 2025-12-05]. https://blog.dol.gov/2024/11/19/new-data-childcare-costs-remain-an-almost-prohibitive-expense

Ruppanner, L., et al. (2019). Expensive childcare and short school days = lower maternal employment: Evidence from u.s. states [PMCID: PMC8174532]. *Social Science Research*. Peer-reviewed article. https://doi.org/10.1016/j.ssresearch.2021.102627

Tekin, E. (2007a). Childcare subsidies, wages, and employment of single mothers. *Journal of Human Resources*, *42*(2), 453–487. https://doi.org/10.3368/jhr.XLII.2.453

Tekin, E. (2007b). Single mothers working at night: Standard work and child care subsidies. *Economic Inquiry*, *45*, 233–250. https://doi.org/10.1111/j.1465-7295.2006.00039.x

U.S. Bureau of Labor Statistics. (2025a, April). *Employment characteristics of families – 2024* (tech. rep. No. famee) (News release). U.S. Bureau of Labor Statistics. https://www.bls.gov/news.release/pdf/famee.pdf

U.S. Bureau of Labor Statistics. (2025b). QCEW Overview [Accessed: 2025-12-06].

U.S. Bureau of Labor Statistics. (n.d.). Labor force participation rate – men [lns11300001] [Retrieved November 20, 2025]. https://fred.stlouisfed.org/series/LNS11300001

U.S. Government Accountability Office. (2024, February). *Head start in vulnerable communities: Opportunities exist to better align resources with child poverty* (Report). U.S. Government Accountability Office.

Wellington, A. J. (2006). Self-employment: The new solution for balancing family and career? *Labour Economics*, *13*(3), 357–386. https://doi.org/https://doi.org/10.1016/j.labeco.2004.10.005

Women's Bureau, U.S. Department of Labor. (2023). *National database of childcare prices: Technical report* (tech. rep.). U.S. Department of Labor. https://www.dol.gov/sites/dolgov/files/WB/media/National-Database-of-Childcare-Prices-Technical-Report.pdf

Wooldridge, J. M. (2015). Control function methods in applied econometrics. *The Journal of Human Resources*, *50*(2), 420–445. Retrieved December 6, 2025, from http://www.jstor.org/stable/24735991

Appendix A Data coverage across counties

In Table 7, we show the number of counties and the representative proportion of the population in each state that is included in our sample. For example, there was at least one observation from 18 of the counties in Illinois in our sample. These 18 counties represent 81 percent of the population of the state of Illinois. We are missing coverage of the District of Columbia, Indiana, Montana, New Hampshire, New Mexico, South Dakota, Vermont, West Virginia and Wyoming. Due to their reporting methods, we do not have childcare pricing data for Indiana or New Mexico. The ACS does not disclose the county of residence for households who may be able to be identified by the information they provide, e.g., households who live in particularly rural areas. Overall, our dataset covers 409 counties. Approximately 64 percent of the American population reside in those 409 counties.

Table 7: Number of Counties and Proportion of Population Covered by State

State	Counties	Pop. (%)	State	Counties	Pop. (%)
Alabama	7	38	Montana	0	0
Alaska	1	44	Nebraska	3	56
Arizona	5	84	Nevada	2	89
Arkansas	4	36	New Hampshire	0	0
California	34	96	New Jersey	17	94
Colorado	1	6	New Mexico	0	0
Connecticut	8	100	New York	21	79
Delaware	3	100	North Carolina	20	59
D.C.	0	0	North Dakota	1	25
Florida	28	75	Ohio	21	62
Georgia	20	46	Oklahoma	3	32
Hawaii	2	84	Oregon	8	73
Idaho	1	7	Pennsylvania	20	69
Illinois	18	81	Rhode Island	3	88
Indiana	0	0	South Carolina	4	23
Iowa	4	22	South Dakota	0	0
Kansas	3	31	Tennessee	9	46
Kentucky	5	34	Texas	38	83
Louisiana	8	43	Utah	5	81
Maine	3	28	Vermont	0	0
Maryland	12	89	Virginia	10	32
Massachusetts	2	13	Washington	9	79
Michigan	16	71	West Virginia	0	0
Minnesota	8	59	Wisconsin	13	60
Mississippi	3	19	Wyoming	0	0
Missouri	6	46			

Note: Proportion of population is calculated as the proportion of the population in the counties in each state that appear in the dataset divided by the total population of the state.

In Table 8, we provide the number of counties that are excluded from our childcare pricing dataset. The states of Indiana and New Mexico do not report market prices and so are excluded from the database entirely. Missouri reports market prices by Metropolitan Statistical Area (MSA), with one price for the "rest of the state". The "rest of state" counties will be backfilled as much as possible as we update and expand the 2024 release of the NDCP. Finally, Alaska's more rural counties did not have any licensed childcare providers who were surveyed, who responded, and/or who provided rate information. In several counties, only one provider was surveyed.

Table 8: Missing Counties by State, National Database of Childcare Prices 2008-2022

State	**No. Counties**
Alaska	13
Indiana	92
Missouri	94
New Mexico	33
South Dakota	1
Virginia	1
Total	**234**

Appendix B Full regression results

In the following tables, we provide complete regression results, including coefficients and standard errors for the control variables used.

Unmarried fathers are less likely to participate in the labor force while unmarried mothers are more likely to participate in the labor force. In a broader context, fathers, particularly fathers of young children, have exceptionally high and stable rates of labor force participation (Bick et al., 2023). In 2024, almost all - 94.3 percent - of married fathers participate in the labor force, while 89.4 percent of unmarried fathers participate in the labor force (U.S. Bureau of Labor Statistics, 2025a). In comparison, the labor force participation rate for all working age men was 67.9 percent in December 2024 (U.S. Bureau of Labor Statistics, n.d.).

Black, Native American, and AAPI fathers are less likely to participate in the labor force, while black mothers are more likely to participate in the labor force compared to white fathers and mothers. Mothers with any amount of education above a high school diploma are more likely to participate in the labor force. Fathers with only some college are less likely to participate in the labor force, while fathers with at least a bachelor's degree are more likely to participate. These results likely reflect the availability and attractiveness of trade-work for men who do not attend college. As household income increases, both fathers and mothers are more likely to participate in the labor force.

We include a variable to reflect multigenerational households. In a 2022 survey of families, 32 percent of families with children under the age of five rely on a relative for childcare arrangements (Eggleston et al., 2023). We hypothesize that some of these informal arrangements may include multigenerational households, e.g., families with young children living in the same homes as grandparents. However, we find that living in a multigenerational household reduces the probability of being in the labor force for both fathers and mothers. It is possible that we are instead capturing the effect of children who need to provide caretaking services for their elderly parents.

Finally, as expected, parents who live in counties with high job density are more likely to participate in the labor market. The RGDP growth rate of the county is not a statistically significant predictor of the father's labor market participation. On the other hand, mothers who live in counties with high RGDP growth rates are less likely to participate in the labor market. It is possible that mothers living in counties with high RGDP growth rates may be more confident in their ability to re-enter the labor market after leaving to care for their young children, and thus are more likely to leave work in the first place.

Table 9: Labor Force Participation Probit Regression Results

Variable Name	Male Coefficient (Std. Error)	Female Coefficient (Std. Error)
Intercept	2.13*	-1.10*
	(0.083)	(0.046)
Not married	-0.12*	0.65*
	(0.0066)	(0.0039)
Race		
Black	-0.18*	0.41*
	(0.0084)	(0.0053)
Native	-0.30*	-0.019
	(0.033)	(0.020)
AAPI	-0.061*	-0.21*
	(0.0096)	(0.0051)
Other	0.14*	0.028*
	(0.0089)	(0.0049)
Education		
Some college	-0.017	0.31*
	(0.010)	(0.0056)
Bachelor's	0.039*	0.23*
	(0.0077)	(0.0040)
Graduate/professional	0.13*	0.49*
	(0.010)	(0.0050)
No answer	-0.24*	-0.32*
	(0.018)	(0.014)
Family Income ($)		
50,001–100,000	0.51*	0.48*
	(0.0065)	(0.0039)
100,001–150,000	0.74*	0.72*
	(0.0092)	(0.0049)
Over 150,000	0.79*	0.79*
	(0.010)	(0.0053)
3+ generations in household	-0.50*	-0.14*
	(0.0076)	(0.0045)
Job density	0.074*	0.027*
	(0.020)	(0.010)
RGDP growth rate	0.076	-0.51*
	(0.093)	(0.053)
log(Childcare Prices)	**-0.0082**	**-0.081***
	(0.013)	**(0.0073)**
CC Availability Index	**0.29***	**1.96***
	(0.16)	**(0.090)**
CF Residuals	-0.15*	0.22*
	(0.020)	(0.011)
Observations:	1,109,530	1,307,258
Population Size:	26,400,388	31,650,351

Note: * signifies statistically significant at the 5% level.

In our analysis of wage employment versus self-employment, we find that unmarried parents are less likely to enter self-employment. Black, Native American, and AAPI parents are also less likely to be self-employed versus wage-employed. More educated parents are less likely to be self-employed although the effect of earning a bachelor's degree for mothers is not statistically significant. Finally, wealthier households and multigenerational households are less likely to be self-employed rather than wage-employed. Since there is an inherent risk in entrepreneurship, it is possible that parents to young children would prefer wage-employment when they are less able

to insure against those risks or when they have more to lose, e.g., when they are married or when they earn higher wages.

In counties with greater job density and faster RGDP growth rates, however, parents are more likely to be self-employed rather than wage-employed. These results are intuitive, confirming that men and women are more likely to enter entrepreneurship in growing economies with more opportunities for work and job growth.

Table 10: Wage Employment vs. Self-Employment Probit Regression Results

Variable Name	Male Coefficient (Std. Error)	Female Coefficient (Std. Error)
Intercept	-0.60*	-0.17
	(0.068)	(0.087)
Not married	-0.12*	-0.25*
	(0.0068)	(0.0079)
Race		
Black	-0.20*	-0.38*
	(0.0094)	(0.012)
Native	-0.16*	-0.17*
	(0.034)	(0.055)
AAPI	-0.10*	-0.034*
	(0.0078)	(0.0096)
Other	-0.089*	-0.064*
	(0.0075)	(0.0010)
Education		
Some college	-0.11*	-0.053*
	(0.0089)	(0.011)
Bachelor's	-0.072*	-0.010
	(0.0061)	(0.0080)
Graduate/professional	-0.16*	-0.054*
	(0.0072)	(0.0090)
No answer	0.18*	0.21*
	(0.018)	(0.029)
Family Income ($)		
50,001–100,000	-0.21*	-0.15*
	(0.0058)	(0.0080)
100,001–150,000	-0.23*	-0.16*
	(0.0072)	(0.0099)
Over 150,000	-0.0055	-0.047*
	(0.0074)	(0.010)
3+ generations in household	-0.095*	-0.16*
	(0.0082)	(0.0094)
Job density	0.0031	0.071*
	(0.015)	(0.020)
RGDP growth rate	0.14	0.81*
	(0.074)	(0.098)
log(Childcare Prices)	**0.095***	**0.17***
	(0.011)	**(0.013)**
CC Availability Index	**-0.90***	**-1.41***
	(0.13)	**(0.17)**
CF Residuals	-0.18*	-0.39*
	(0.017)	(0.021)
Observations:	1,021,226	814,796
Population Size:	24,153,416	19,539,481
Note: * signifies statistically significant at the 5% level.		