Childcare and Women's Employment Outcomes: Evidence from Five New England States*

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Abstract

This paper quantifies the relationship between childcare supply and cost and maternal labor market outcomes in five New England states using census-block-group and individual-level data from 2010 to 2023. We construct granular measures of childcare supply and cost from provider-level licensing records and match them to labor force participation and employment outcomes for women with young children. Our results show that greater childcare supply—particularly home-based care—is consistently associated with increased maternal labor market attachment, while higher costs are associated with decreased attachment. Our findings also suggest that center-based childcare supply is more important for high-income, highly educated mothers in urban areas. Quantitatively, a one-standard-deviation increase in childcare supply combined with a one-standard-deviation decrease in childcare cost is associated with a 2.33 percentage point increase in labor force participation among mothers of young children at the block-group level.

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1 Introduction

Recent declines in women's labor force participation in the United States underscore long-standing concerns about structural barriers to female employment, particularly access to and the affordability of childcare. A recent report by KPMG (2025) finds that from December 2023 to August 2025, labor force participation fell by 2.3 percentage points among college-educated mothers of young children and 1.1 percentage points among those without a college degree. By contrast, labor force participation among fathers of young children rose slightly during the same period, highlighting persistent gender disparities in labor market outcomes associated with childbearing. Gender disparities in workforce participation are well documented (see Goldin and Mitchell 2017), but they were exacerbated during the early phases of the COVID-19 pandemic, due in part to closures of childcare centers and schools (see, for example, Collins et al. 2021, Couch et al. 2020, Goldin 2022, Heggeness 2020, Luengo-Prado 2021, Russell and Sun 2020). As the economy reopened and recovered, some mothers retained access to newly flexible work arrangements, which likely helped offset some childcare constraints. Female labor force participation rebounded as a result. However, many of the structural challenges facing the childcare sector remain unresolved. Rapidly increasing childcare costs reveal supply–demand imbalances in a sector characterized by low wages and high turnover rates. As pandemic-era flexibility wanes and federal stabilization funding expires, limited childcare supply and rising childcare costs may be pushing some mothers out of the labor force.[1] According to a recent nationwide survey, as many as 27 percent of parents had to quit a job in 2025 due to inadequate childcare (see ReadyNation 2026).

This paper quantifies the importance of childcare supply and cost for mothers of young children in New England and aims to disentangle the effects of each. Although we focus on mothers of children too young to enroll in the public school system, it is important to recognize that persistent gaps in affordable childcare access can have long-lasting effects on women's labor market trajectories. When childcare demands limit their options, women may exit the workforce, delay entry or reentry into the labor market, or reduce their working hours. Consequently, barriers to childcare influence not only women's current labor supply but also their long-term attachment to the labor market.

Childcare is costly. According to the U.S. Department of Labor's National Database of Childcare Prices (NDCP), median annual prices for one child in 2022 ranged from $6,552 to

[1] Louis (2023) projects the closure of 70,000 childcare programs and discusses the economic consequences.

$15,600 across the United States, representing 8.9 percent to 16 percent of median income.[2] About half of parents with children under age 5 report that their childcare expenses exceed their housing costs (ReadyNation 2026). Meanwhile, childcare workers earn relatively low wages, about $15.41 per hour or $32,000 per year in 2024,[3] and their average monthly earnings stand at just 47.7 percent of the all-industry average, based on 2024 quarterly workforce indicators (QWIs). Providing quality care to young children is demanding work, and turnover in the sector exceeds the national average. Many providers report operating on thin financial margins and facing persistent cost pressures, staff shortages, and stagnant federal support.[4]

Despite the high costs, waiting lists for childcare (especially for infants) are common, suggesting that supply falls short.[5] A report by Malik et al. (2020), based on the work of Davis et al. (2019), documents the existence of "childcare deserts"—areas with limited supply relative to the number of children living nearby. Even before the pandemic, middle-income communities, poorer rural areas, and predominantly Hispanic neighborhoods had the lowest levels of local childcare capacity relative to estimated demand.

Childcare in the United States has become both significantly more expensive and increasingly difficult to find in recent years. The Early Childhood Program Participation (ECPP) survey, a component of the National Household Education Surveys (NHES), gathers data on early childhood care and education arrangements for children in the United States from birth through age 5 who are not yet enrolled in kindergarten. Comparing the last two survey waves shows that the 2023 hourly cost for center-based care ($21.32) was more than twice the inflation-adjusted 2019 cost ($9.80). Compounding the financial strain, the lack of supply has become an increasingly severe barrier to accessing childcare. In the 2019 ECPP survey, 27 percent of parents cited a lack of open slots as the primary reason they struggled to find childcare, compared with 37 percent who identified cost as their leading barrier. By 2023, however, lack of open slots and cost were cited equally as the primary barrier to finding childcare; each was reported by 34 percent of parents, reflecting a marked rise in supply-side constraints along with persistent affordability challenges (see Hanson and Bobrowski 2024).

Our analysis combines childcare licensing data—which include the exact location of each

[2]The data can be found in the U.S. Department of Labor blog.

[3]Data are from Occupational Employment and Wage Statistics.

[4]See National Association for the Education of Young Children (2024), Child Care Aware of America and Buffett Early Childhood Institute (2025).

[5]See, for example, Zero to Three (2024).

licensed provider, the number of children it can serve, and the provider type (center-based or home-based)—with American Community Survey (ACS) five-year estimates at the U.S. Census block-group level.[6] We focus on five states in the New England region (Connecticut, Maine, Massachusetts, Rhode Island, and Vermont) over the 2010–2023 period. This region has some of the highest childcare costs in the United States.[7] We first construct measures of childcare supply (total and by type) and cost at this granular level of geography using a travel-time-based approach developed by Davis et al. (2019). We then examine how these factors influence the labor market outcomes of mothers of young children residing in these areas. Although supply and cost are closely intertwined and difficult to disentangle, our analysis identifies distinct effects. We find that a higher supply of childcare, especially home care, is significantly associated with increased participation in the labor force among mothers of young children, while higher childcare costs are strongly linked to lower participation and employment. Quantitatively, a one-standard-deviation increase in childcare supply, combined with a one-standard-deviation decrease in childcare cost, is associated with a 2.33 percentage point increase in labor force participation among mothers of young children.

Estimates based on block-group-level ACS five-year data may underestimate the true childcare effect due to attenuation bias from geographic and time aggregation. Nevertheless, the evidence points to childcare limitations as a quantitatively important binding constraint for many mothers of young children, with implications for both short-term labor supply and long-term labor market trajectories.

Focusing on the same set of states, we also examine the effects of childcare supply and cost using individual-level data from the Current Population Survey Annual Social and Economic Supplement (CPS ASEC) and a restricted version of the Panel Study of Income Dynamics (PSID). The CPS ASEC comprises a reasonably large sample size, but it contains limited geographic detail, with identifiers restricted to the state level and to selected counties and metropolitan areas. Consequently, we aggregate our block-group-level supply and cost measures to match the lowest available geography. For the PSID, we obtained restricted-use data that allow us to match respondents to their census block group of residence, enabling a more granular geographic link between childcare measures and PSID respondents. However,

[6] A census block group is a statistical geographic unit defined by the U.S. Census Bureau. It is a subdivision of a census tract and typically contains 600 to 3,000 people. Each block group consists of a cluster of contiguous census blocks (the smallest geographic area for which the bureau collects and tabulates data) and represents the smallest geographic level at which ACS estimates are published.

[7] According to the NDCP state-level estimates for 2021, all five states are within the top 10 nationally regarding median prices for center-based toddler care.

the sample size is very small.

Our analysis using these alternative, individual-level data sources corroborates our findings based on ACS data, showing strong associations between childcare access and cost and women's participation in the labor force. Based on our CPS analysis, a one-standard-deviation increase in childcare supply, combined with a one-standard-deviation decrease in childcare cost, is associated with an increase in labor force participation of 5.4 to 7 percentage points among mothers with children under the age of 5. The results of the PSID analysis are consistent with the CPS results, especially regarding women with better employment opportunities.

An important challenge in estimating the effect of childcare supply on maternal labor outcomes is that providers might not locate randomly. Centers in particular tend to open in areas with stronger labor markets, higher demand, or more favorable regulation. Therefore, OLS estimates may conflate true supply effects with underlying area conditions. To address this concern, we construct instruments that shift local childcare availability for reasons unrelated to a block group's own labor market. These sources of variation allow us to isolate plausibly exogenous changes in childcare supply. The resulting instrumental variable (IV) estimates are consistent with the OLS results but are substantially higher. This indicates that when childcare availability expands for reasons unrelated to local demand, gains in maternal employment might be even more pronounced. However, our heterogeneity analysis suggests that the gains might be concentrated among high-income and highly educated mothers facing better job opportunities.

Our findings highlight that both the nearby supply of childcare and its cost are important for mothers' labor market decisions. Previous research finds that childcare subsidies to parents support women's participation in the labor force (Baker et al. 2008, Enchautegui et al. 2016, Lefebvre and Merrigan 2008, Morrissey 2017), but subsidies do not necessarily address supply shortages or the cost of childcare in specific areas. The price of childcare is largely determined by the cost of supplying it. Hotz and Xiao (2011) find that childcare regulations, such as child–staff ratios, group size limits, and educational/training requirements, reduce the number of center-based childcare establishments, especially in lower-income markets. However, such regulations can potentially increase the quality of services provided, especially in higher-income areas. In their view, these regulations create both winners and losers. Gorry and Thomas (2017) document that childcare regulations significantly increase the cost of childcare. Yet, not all measures of childcare "quality" enhance childcare outcomes or safety. They argue that group size limits or child–staff ratios do not correlate with child outcomes,

whereas other measures related to teacher training have a positive effect on outcomes. If this is indeed the case, subsidizing the training of potential childcare providers, combined with loosening child–staff ratios and group sizes, might help make childcare more affordable without sacrificing quality. Similarly, Currie and Hotz (2004) find that requiring daycare center directors to have more education reduces the incidence of unintentional injuries, but they also argue that excessive regulation crowds out children into non-formal care, which tends to be less safe. In addition, public provision of early childhood education in the United States is lower than in other developed countries and could be expanded.[8] The declining fertility rate has already caused school-age cohorts to shrink and has led to school closures in some US regions. Experts note that repurposing underutilized school buildings as childcare centers is both feasible and economically sound.

The remainder of the paper is organized as follows. Section 2 describes the construction of childcare supply and cost measures using licensing data, including geographical matching and exposure assumptions. Section 3 presents block-group-level regression results using ACS data, with various robustness checks. Section 4 validates these findings using individual-level data from the CPS and PSID. Section 5 presents a brief conclusion.

2 Childcare Licensing Data and Construction of Childcare Supply and Childcare Cost Measures

Childcare licensing data

Childcare is a highly regulated industry. Most providers in New England are required to hold a license to operate legally in their respective state. Certain childcare providers, however, are exempted from needing a license, including facilities based in public schools or affiliated with religious organizations and nannies, typically defined by states as individuals who care for children from no more than two unrelated families in private homes.[9] Due to

[8] See Organisation for Economic Co-operation and Development (2023) for comparisons of early childhood education systems in different countries, including enrollments, regulations, provider wages, and modes of provision.

[9] According to the 2023 ECPP survey, 55 percent (down from 59 percent in 2019) of children from birth through age 5 who were not yet enrolled in kindergarten were in at least one weekly nonparental care arrangement, as reported by their parents. Sixty-six percent (up from 62 percent in 2019) of those children were attending daycare centers, Head Start programs, preschools, prekindergartens, and other early childhood programs (center-based care); 34 percent (down from 38 percent in 2019) were cared for by a relative (relative care); and 17 percent (down from 20 percent in 2019) were cared for in a private home by someone not related to them (nonrelative care). Multiple arrangements were not uncommon, so these

regulatory requirements, states record each license along with basic information about the provider.

We obtained provider-level childcare licensing data from state regulators in all six New England states during 2024. The data comprise the universe of licensed childcare providers in each state. Unfortunately, New Hampshire's data cannot be used in this analysis because they does not include the start date of each license. As a result, we cannot determine the period during which each licensed provider was operating in that state. Although there are some differences in the information collected among the remaining five states, they all record the uniquely assigned license/provider number, the start and end dates of each license, the provider's name and street address, the provider type (home or center), the minimum age of children served, and the total capacity, defined as the maximum number of children allowed to enroll at any given time. Total capacity tends to be uniform across home-based providers within each state and is often 10 or fewer children, while total capacity for centers varies and can be in the hundreds. Vermont is the only state in the New England region that reports capacity by children's age group (that is, infant, toddler, or preschool).

Total capacity is best interpreted as an upper bound on the supply for children younger than school age. Providers can, and often do, enroll fewer children than the legal maximum. Using 2022 data from Virginia, Miller-Bains et al. (2024) show that authorized capacity exceeds the number of children whom providers can actually serve at a given time by a factor of 1.35, reflecting constraints such as staffing shortages and mixed-age classrooms. Some providers' total capacity also includes slots for school-age children because they offer afterschool care. We exclude providers that exclusively served children aged 6 and older, identified by a minimum age of 6 or higher. However, for providers serving both younger and school-age children, total capacity likely overstates the number of slots available for children aged 5 and younger.

The licensing data we have do not include pricing information. In recent years, Massachusetts has encouraged childcare providers to voluntarily enter and update their prices in the state's online reporting system. However, the pricing information remains incomplete and significantly outdated due to infrequent updates. In addition, there are no consistent measures of childcare quality at the provider level across states. Connecticut, Maine, and Rhode Island do not include quality-related information in their licensing data. Massachusetts includes some information that could act as a quality proxy such as the number of reported

numbers do not add up to 100 percent.

incidents, complaints, violations, and investigations. However, state officials cautioned us against using these indicators to measure quality due to perceived unreliability and potential misinterpretation. Due to its reform of childcare policy, Vermont recently introduced a rating system with a phase-in period. Zhao and Luengo-Prado (2024) show that, on average, center-based providers receive higher state-assigned ratings than home-based providers. However, such ratings were not available for Vermont providers in the early part of our data.

States typically organize their childcare licensing data in a duration format, including the start and end dates of each license. In response to regular requests from state legislators for childcare provider information, Vermont converted its duration data into yearly data by assigning providers to a year if their licenses were valid at any point in December of that year. Vermont provided us with its yearly data from 2010 through 2023, instead of the raw duration data. To keep the yearly data format consistent across states, we adopt Vermont's approach to converting other states' duration data into yearly data, allowing us to merge them with other yearly data sets.

Construction of childcare supply measures

We geocoded the location of each childcare provider. We first cleaned the street addresses and then obtained their corresponding longitudes and latitudes using the Census Bureau's TIGER system. In a small number of cases in which TIGER failed to return coordinates, we used the Open Street Map (OSM) geocoding system and Google Maps as alternatives. Although Vermont provided us with licensing data for 2010 and 2011, the state did not record street address information in those years. Massachusetts and Maine include a second address when the providers moved within a given year, allowing us to assign accurate coordinates to movers for each year.

Following Davis et al. (2019), we use an enhanced two-stage floating catchment area (E2SFCA) approach to construct measures of childcare supply for each census block group. Researchers and practitioners have often measured childcare supply at a much higher geographic level by aggregating the total capacity level. However, this approach ignores the vast variation within counties (especially large and densely populated counties) and fails to account for the fact that families living near county borders can, and often do, send their children to daycare facilities across those borders. By contrast, the E2SFCA incorporates the distance or driving time between each block group and each provider to define the set of realistically accessible providers for each block group as well as the relevant neighborhoods for each provider, conditional on feasible travel time or distance. This approach also accounts

for competitive pressure by considering the number of young children living near a provider to which parents could send their children.

In the first stage of the E2SFCA approach, we take each provider as given and calculate the ratio of its total capacity to its relevant child population. We define the relevant child population as children aged 5 and younger who live in block groups within a specified driving-time radius from that provider. These block groups comprise the first-stage catchment area. To identify this catchment area, we take each provider's coordinates and the population-weighted centroid of each block group from the 2010 and the 2020 censuses and then enter them into the Open Source Routing Machine (OSRM) to calculate the driving time between each provider and each block group. OSRM uses Open Street Map data. It does not account for traffic conditions at different times of the day of the week; instead, it applies predefined speed limits by road type to calculate the shortest driving time between two locations. Therefore, it likely underestimates driving times in urban areas, which tend to experience traffic congestion during drop-off and pick-up hours. Following Davis et al. (2019), we use a 20-minute drive-time cutoff as our preferred threshold. Several surveys cited in their study show that most families do not travel far for childcare; thus, 20 minutes represents a reasonable compromise to define the relevant neighborhoods for each provider. We also test 10- and 30-minute cutoffs to assess the robustness of our results.

Next, we calculate the sum of the drive-time-discounted child population aged 5 and under across block groups within a provider's first-stage catchment. Each block group is given a discount factor defined by a Gaussian decay function, which decreases as the friction-of-distance parameter, b, increases. This means that children who live closer to the provider are given a higher weight. We use 2 as our preferred b value, as it shows a significant decay when the drive time approaches 20 minutes, but the decay is not too significant to turn the discount factor into virtually zero. When b is equal to 3 or 4, the discount factor approaches zero when drive times are 16 minutes or 8 minutes, respectively. This is so binding that these values would render meaningless the 20-minute drive-time cutoff. We also try b values equal to 0 and 1 to show the robustness of the results. When b is equal to 0, there is no distance decay, and all block groups within the catchment area are equally weighted.

Finally, we divide each provider's total capacity by the sum of the drive-time-weighted child population within its catchment area. This yields a ratio of slots to nearby young child population for each provider. This ratio is lower when more children live close to the provider. In other words, more families are likely to compete for each slot compared with a provider with the same capacity but fewer nearby children.

In the second stage of the E2SFCA approach, we take each block group as given and calculate its nearby supply, adjusted for nearby population (or simply named adjusted supply by Davis et al. 2019). We first define the catchment area for each block group by identifying all providers within a 20-minute drive from the block group's centroid. Each provider is then assigned a weight based on the same Gaussian decay function and the same b value used in the first stage. We use these weights to calculate the weighted average of the provider-level slots-to-child ratios within this second-stage catchment area, which is our measure of adjusted supply for each block group. We complete the preceding process for all providers together and by type (centers only and home-based providers only) to calculate their adjusted supply measures accordingly.

Construction of childcare price measures

Because we do not have provider-level pricing information, we need to construct a cost proxy in two stages. In the first stage, we start with county-level childcare workers' monthly earnings, as reported in the QWI data for NAICS code 6244. This choice is based on the fact that childcare is a very labor-intensive industry and that childcare providers' operating expenses are largely devoted to worker salaries. For example, Blau (2001) and Herbst (2018) report that about 80 percent of childcare costs are used to pay childcare workers' wages. Therefore, as Rodgers (2018) argues, childcare wages are a valid proxy for childcare prices. We assign year-specific and county-specific earnings to each provider within the same county and then adjust them based on the income level of the nearby population relative to the county-level income, as well as by the type composition of providers.

To calculate the income level of each provider's nearby population, we first obtain median household income for each block group within the provider's first-stage catchment area, based on ACS five-year estimates. We then assign each block group a composite weight, which is the product of the block group's number of children under the age of 6 and a distance decay factor from the Gaussian function using the same b value as earlier. This weight is higher when the block group is closer to the provider or when it has more young children who could be served. We use these weights to compute the weighted average median household income within the catchment area of each provider. We then scale the county-level childcare workers' monthly earnings up or down based on the ratio of this weighted average income to the same-year county-level median household income. This adjustment reflects the assumption that higher-income families have a greater ability to pay for childcare and are therefore likely

to face higher prices.[10] In addition, we obtain a center-to-home-based price ratio for each county and year from the NDCP to further scale the proxy, allowing childcare centers to charge more than home-based providers.[11]

In the second stage, we take each block group as given and calculate a weighed average of approximated childcare prices from the first stage across providers within the second-stage catchment area. The weight is the discounted slots-to-population ratio calculated in the previous section.

A first look at the data

Among the five New England states in our study, Vermont consistently exhibits the highest total childcare supply, with close to 0.8 spots per child during the study period (see Figure 1). This is not surprising, as Vermont leads New England in childcare policy, with stronger subsidy reforms and governance initiatives than its neighbors. Maine also stands out from the other four states, with supply hovering around 0.5 slots per child.[12] Rhode Island consistently ranks lowest in total supply, with minimal growth over time. Center-based care accounts for the majority of the supply in all states, and a decline in the slots provided by home-based providers is evident throughout the study period across all states. These patterns suggest a regional shift toward more formal-care models.

Regarding costs, Figure 2 highlights the level differences between states, likely explained by the cost of living and, more importantly, the sharp increases at the end of the sample period. This pattern reflects the wage gains that accrued to lower-earning workers, including childcare workers, after the pandemic; composition changes in the provision of childcare services, with a heavier weight for childcare centers; and general inflation trends.[13]

[10] We tested this assumption in two ways. First, we find that county-level childcare prices in the NDCP are positively correlated with county-level median household income. The correlations are both large and highly statistically significant. Second, we obtained several years of provider-level responses to the Childcare Market Rate Surveys from Vermont and Massachusetts and checked the correlation between each provider's reported price with the median household income of the tract where the provider was located. The correlation between the two is positive and large.

[11] The NDCP contains prices by age group (infant, toddler, and preschool). The infant group roughly covers ages younger than 2, the toddler group covers age 2, and the preschool group covers ages 3 and 4. We create an aggregate measure of childcare prices by giving infant, toddler, and preschool a 40 percent, 20 percent, and 40 percent weight, respectively.

[12] The supply measures in our analysis account for demographic trends. Constant slots with a decreasing population would appear as supply increases, measured as slots per child.

[13] Some experts argue that rising childcare prices may also reflect the increasing presence of private equity in the sector (see Haspel 2024a,b).

Tables 1 and 2 offer a complementary snapshot of the variation in supply and cost, dividing the block groups by the types of childcare providers located within the block group itself or within a 10-minute drive. The columns compare block groups with both provider types, only home-based providers, only center-based providers, and none at all. The tables underscore the importance of moving beyond the artificial boundary of a block-group definition, as the patterns of the two approaches differ notably. Based on the distance-based measure, only 2.6 percent of block groups lack providers, and these tend to be poorer and more rural. By contrast, when the analysis uses strict block-group borders, 30.8 percent of block groups have no providers.[14]

Figure 3 presents rolling five-year averages of school enrollment rates among children aged 3 to 5 using data from the October Supplement of the Current Population Survey, which collects annual information on school enrollment, including nursery school enrollment, for children aged 3 and older.[15] The use of rolling five-year averages in this figure smooths short-term fluctuations and highlights trends and differences between states regarding access to full-day care. In all states, enrollment rates remain well below universal coverage. Although these data do not provide information on infants and toddlers, we assume that formal enrollment of the youngest children is even lower. Even in the highest-performing states, fewer than 80 percent of preschool-aged children are enrolled in any program, and the regional average hovers close to 70 percent by the end of the period. Full-day preschool remains limited, and these rates clearly do not approach the thresholds needed to support widespread full-time maternal employment.[16]

[14]If transportation barriers are important for some groups, our distance-based measures of availability and cost might warrant some caveats for these groups.

[15]Respondents are asked, "Is [child's name] enrolled in a regular school, including nursery school, kindergarten, or elementary school?" and "Does [child's name] attend school full time or part time?" These questions are asked about all household members aged 3 and older.

[16]The Appendix figures show enrollment by single-year age group, with clear increases as children grow older. Three-year-olds are significantly less likely to be enrolled than 5-year-olds.

3 Childcare and Labor Market Outcomes: Evidence from Block-group Data

3.1 Data Details

Our main analysis is based on block-group-level data from five-year ACS estimates, accessed through the Census Bureau's primary dissemination tools. These estimates provide detailed population and housing counts across a wide range of demographic, social, economic, and housing characteristics at multiple geographic levels, including block groups. We rely on the five-year estimates because they offer greater precision than the one-year estimates and are the only source of detailed data for small geographies. Released annually since 2009, each five-year estimate reflects data collected over a 60-month period. For example, the five-year ACS estimates for the 2019–2023 period are based on data collected from January 1, 2019, through December 31, 2023. For brevity, we refer to each ACS release by the last year of its coverage period.

Our childcare licensing data span 2010 through 2023, so we use five-year ACS estimates from 2014 through 2023. Because census-block-group definitions change over time, we do not observe a fully balanced panel of block groups. We carefully match our constructed measures of childcare supply and cost with the appropriate block-group definitions in each period and average them to the corresponding five-year period. For labor market outcomes, we rely on Table B23003, which reports employment status for women aged 20 to 64 by child composition: own children under 6 only, own children under 6 and 6 to 17, own children 6 to 17 only, or no own children under 18. Since we focus on the effect of having children who are not typically eligible for public school, we combine the two categories that include children under 6 years old, regardless of whether older children are also present.[17] Because the ACS does not provide comparable counts for men, we cannot examine fathers' labor market responses using these data. For this reason, we compare the results for women with young children with the results for women without children. We would prefer to focus on prime-age women (aged 25 to 54), whose labor market outcomes are less affected by schooling or retirement decisions. However, the ACS does not report labor force statistics by child status for this age group, so we use the broader range of 20 to 64.

[17] Five-year-old children are eligible for kindergarten if they meet the age cutoff set at the beginning of the school year, but our analysis is constrained by the tabulations available in the ACS.

3.2 Results

Table 3 reports block-group-level regression estimates of the relationship between childcare supply and cost and labor market outcomes for women aged 20 to 64 years, stratified by child status. The outcomes are labor force participation and employment rates (both in percentage points), with separate columns for women with any children under the age of 6 and those without children. The regressions are unweighted and control for the percent of women aged 25 or older with a college degree or higher; the percent of women aged 20 to 34 and 35 to 49 out of all women 20 to 64 years old; and the percent of women aged 15 or older who were never married, divorced, or widowed.[18] All models include county and year fixed effects, and standard errors are clustered at the block-group level. Our baseline results use a specification of childcare measures with $b = 2, t = 20$, which reflects moderate distance decay and a travel time of 20 minutes. As shown in Table A.1 in the Appendix, this combination yields an average supply of about 0.6 spots per child across block groups, with a standard deviation of 0.23. The average cost is \$2,136, with a standard deviation of about \$563. In the regressions, both supply and cost variables are standardized to facilitate comparisons of the estimated coefficients.

Not surprisingly, participation and employment rates are higher for women without children: 3.1 percentage points and 3.5 percentage points, respectively. For women with young children, the supply of childcare is positively associated with participation in the labor force, with a statistically significant coefficient of 0.42. The corresponding estimate for employment is smaller (0.21) and is not statistically significant. By contrast, cost is strongly negatively associated with both outcomes for these mothers, with large and significant coefficients of –1.91 for labor force participation and –1.76 for employment. These results suggest that higher childcare costs substantially reduce mothers' labor market attachment, while increased supply can help support participation. The estimates are also economically meaningful, indicating that labor force participation would be 2.33 percentage points higher—or 3.1 percent above the average—in a block group with one-standard-deviation greater childcare supply and one-standard-deviation lower cost. For women without children, neither supply nor cost shows a meaningful or statistically significant relationship with labor market outcomes. As expected, childcare constraints are most relevant for mothers of young children, and affordability and availability play a distinct role in shaping their labor force behavior.

[18] Our control definitions are dictated by data availability in the ACS.

Table 4 reports estimates of regressions that divide childcare supply into home and center types and also presents robustness checks for the relationship between childcare and labor market outcomes for women with children under 6 years old using alternative definitions of supply and cost. The columns vary by two parameters: the Gaussian decay parameter (b = 0, 1, or 2), which governs how quickly childcare access is discounted with distance, and the maximum driving time (t = 10, 20, or 30 minutes), which sets the cutoff for including facilities in childcare measures. These combinations test the sensitivity of the results to assumptions about the importance of proximity and travel behavior. The results of our baseline combination $b = 2, t = 20$ (first column) can be compared with the estimates in the preceding table. Home-based supply is positively and significantly associated with both labor market outcomes in this case, and the estimated coefficients are a bit larger than before. By contrast, the center-based supply does not show a statistically significant relationship with either outcome. Childcare cost remains a strong and significant negative predictor of both labor force participation and employment, although estimates are a bit lower than those in Table 3. When supply is disaggregated into home-based and center-based care, the cost measure can become less informative because part of its variation was tied to the underlying mix of supply, given how this measure was constructed. Overall, though, these results reinforce the importance of affordability and suggest that home-based care may play a more consistent role in supporting maternal employment at the block-group level.

When examining alternative b, t combinations, we find that home-based supply is consistently and significantly positively associated with both labor force participation and employment across all specifications, with coefficients ranging from 0.55 to 0.90. Center-based supply shows more mixed results: It is positively associated with labor force participation in the 30-minute exposure window but generally insignificant or negative in shorter windows, especially for employment. Center-based care may be more important for families willing to travel farther or when centers are closer to work than to home. Childcare cost is robustly negative and statistically significant across all specifications, with coefficients ranging from –1.11 to –2.00. Higher costs are a consistent barrier to maternal attachment to the labor market, regardless of how geographic exposure is defined. Overall, the table demonstrates that the estimated effects of home-based supply and cost are stable across a range of plausible travel assumptions, while center-based supply is somewhat more sensitive to the exposure window.

Table 5 presents weighted regression estimates from our baseline specification, disaggregating childcare supply into home-based and center-based types. As in previous results,

home-based supply is positively and significantly associated with labor market outcomes, while childcare cost remains a strong negative predictor. Center-based supply continues to show no statistically significant relationship with either outcome. The estimated coefficients are slightly smaller than the unweighted results in the first column of Table 4, suggesting that the more densely populated block groups may be somewhat less responsive to our childcare measures. However, the differences are modest.

To further explore possible heterogeneity in how childcare characteristics affect maternal employment across groups, we run regressions for selected years (pre–COVID-19 years only) and block groups of varying characteristics (urban versus non-urban and high income versus low income). Childcare cost is a robust negative predictor of labor market outcomes in most subgroups. Relative to the estimates for the entire block-group sample, the estimated effects are larger during the pre–COVID-19 period (2010 through 2019) and in urban areas (those with population densities of 1,000 or more people per square mile) and high-income areas (those with above-median income across block groups). The cost coefficient is not significant in low-income areas (below median), possibly reflecting limited opportunities in the labor market, limited price responsiveness due to subsidies for low-income families, or affordability barriers. Regarding supply composition, home-based care is consistently positive and statistically significant in non-urban and low-income areas, suggesting a particularly important role in supporting maternal employment in these segments. Center-based supply shows more selective effects, with significant effects in more urban and high-income areas. The effect of center-based supply is generally insignificant or weakly negative in low-income areas, suggesting limited reach or affordability. These results highlight substantial heterogeneity in the way childcare characteristics affect maternal employment. Home-based care appears broadly supportive, especially outside urban cores and in lower-income communities. Center-based care is more influential in urban and affluent areas, while cost remains a critical barrier, except when labor market opportunities may dominate price sensitivity. We explore these issues in more detail with the individual-level data.

4 Childcare and Labor Market Outcomes: Evidence from Individual-level Data

To assess the robustness of our results, we examine the relationship between childcare availability and costs at the individual level using two complementary data sets: the CPS ASEC and the PSID. For the CPS, we rely on public-use ASEC microdata accessed through IPUMS

(Flood et al. 2024). For the PSID, we operate under a restricted data agreement with the University of Michigan to obtain block-group identifiers for respondent residences (Social Research Center). We also draw on the longitudinal PSID-SHELF file to more easily construct the samples used in our analysis (Pfeffer et al. 2023).

Our individual-level analysis aims to validate the ACS-based findings and ensure that they are not merely artifacts of aggregation bias or compositional effects not adequately addressed by our controls. Although analysis using these alternative sources comes with its own caveats, as we will discuss, it also enables us to investigate individual-level heterogeneity more directly. As in our previous analysis, we focus on the New England states for which we have childcare licensing data (Connecticut, Maine, Massachusetts, Rhode Island, and Vermont) and the 2010–2023 period.

4.1 Findings using the CPS ASEC

Data Description and Men–Women Initial Comparisons

The primary purpose of the (monthly) CPS—a representative sample of the civilian household population of the United States—is to serve as "the source of official government statistics on employment and unemployment." The ASEC, collected annually around March, is the largest CPS supplement. It includes the same labor force indicators as the basic monthly CPS but also provides a broader range of information not captured in the basic monthly surveys such as income and work experience. For example, ASEC data are used to calculate the official US poverty rate and to measure health insurance coverage. Compared with the basic March CPS, the ASEC sample is expanded to improve reliability for certain subpopulations, including Hispanics and low-income children.[19] It also contains some basic information on childcare use and spending—features that are particularly relevant for our analysis. Some ASEC respondents can be linked over two adjacent years (we adjust the standard errors of our regressions to take this into account), but we do not use the short longitudinal component of the data in our analysis at this stage.

Working with ASEC data for our analysis does not come without caveats. Although ASEC overall sample sizes are large, ranging from 89,000 to 97,000 households (or 142,000 to 210,000 individuals) per year during our sample period, our regression samples are significantly smaller because we focus on only five New England states. In addition, we further restrict our analysis to individuals who are household heads or spouses and in the prime-age

[19]The oversampling has implications for weighting and variance estimation, particularly when analyzing subgroup outcomes or conducting population-level inference. We explore this issue in robustness exercises.

category (25 to 54 years old). Prime-age workers are past typical schooling years and not yet approaching retirement, which attenuates potential confounding effects from education decisions or age-related labor force exits. In some regressions, we expand the age range to 20 to 64 years old to match the age grouping in the ACS.

A further drawback of our analysis using ASEC data is the limited geographic detail available in the public-use data set. Across our five study states, county identifiers are available for only 25.5 percent of respondents, and metropolitan area identifiers are available for about 78 percent of them. Before 2015, only one county was identifiable; after 2015, the list expanded to 18 counties. However, 13 to 15 metropolitan areas are consistently represented throughout the sample period.[20] To maximize the variation in the childcare supply and cost measures used in our regressions, we aggregate the block-group measures from our ACS analysis to the corresponding county or metropolitan area when those identifiers are present. For respondents without county or metropolitan identifiers in a given year, we assign residual measures based on aggregations of block groups outside the identified areas within each state. As a result, different rural areas within a state cannot be separately distinguished in our analysis.

In Table 7, we present average labor force participation rates, employment rates, and full-time employment rates for CPS respondents in our sample, disaggregated by gender and the presence of children in different age brackets.[21] All averages are lowest for women with children under 5 years old and highest for men in the same group, highlighting who bears the labor market cost of caring for the youngest children. For example, the gender gap in labor force participation is 22.7 percentage points among parents with young children, compared with just 2.5 percentage points among individuals without children. Gender gaps narrow only partially as children enter the school system, with the gap declining to 12.2 percentage points among parents with older children. Limited access to affordable childcare can have lasting consequences: Caregiving responsibilities often force women to exit employment, delay labor market entry or reentry, or reduce hours, affecting long-term outcomes.

Nevertheless, some of the observed differences in labor market outcomes may reflect variation in individual characteristics, such as age and education, between groups. Table 8

[20] See IPUM CPS online documentation for counties and metropolitan areas for further details.

[21] The "children under 5" group includes all parents with at least one child younger than 5 years old, while the "older children only" group includes only those with older children. We use children under age 5 as opposed to under age 6 in the ACS because more than half of 5-year-olds would be eligible for kindergarten by the time of the March interview. Results are almost identical if we instead use children younger than 6.

presents regression coefficients that account for these factors, controlling for age, education, race, citizenship status, presence of a partner, health, disability, school or college enrollment, and fixed effects for state and year. All coefficients are reported relative to men with children under age 5. Even after the analysis adjusts for these characteristics, the gender gap in labor force participation remains substantial, narrowing to approximately 16 percentage points.

The CPS ASEC includes some data on the use of paid childcare services for children as old as 14.[22] First, for each child in a family unit, the supplement provides an indicator on whether paid childcare to facilitate parental work was specifically used for that child. Second, it reports the total dollar amount spent on childcare services for all children in the family unit. Because all expenses are grouped together, we cannot distinguish between spending on younger children and spending on older ones. Table 9 shows childcare use for work reasons by child age as well as total spending relative to family income. We present statistics for our sample of states and for other states in the country. For all states, paid childcare use increases with age up to 4 years old (from 20.8 percent for newborns to 40.6 percent for 4-year-olds in our states) and declines thereafter. Maternal labor force participation increases mostly monotonically with the age of the child. Our New England states compare favorably with others regarding maternal labor force participation and education, so it is not surprising that childcare use is also higher on average across the child-age distribution. Childcare spending relative to income (conditional of use) is not very different in our sample, averaging 14.2 percent of family income in New England compared with 13.9 percent in other states. In all states, a large proportion of mothers in the labor force do not report paying for childcare so that they can work. For example, only 56 (48) percent of mothers of 4-year-olds in the labor force in our sample (other states) report paying for childcare. It is possible that childcare is so out of reach for some parents that they rely on unpaid care or somehow manage by themselves.[23] The rest of this section focuses on the effect of childcare supply and cost on labor market outcomes for women with the youngest children.

Results

[22] A primer on paid childcare data in the CPS can be found on the Conference Board webpage. We follow the guidelines in this report to calculate statistics.

[23] Savage and Strifler (2025), focusing on Florida and Georgia, explore the magnitude of childcare burden, measured by the household proportion of income dedicated to childcare (HPI) across various high-demand occupations and family structures. In nearly half of the scenarios they examine, HPI exceeds 40 percent of household income. In most scenarios involving single-earner households with an infant and a 3-year-old, childcare spending represents at least 60 percent of income.

Table 10 reports regression coefficients for labor force participation, employment, and full-time employment among women and men with children younger than 5 years old. All models include standardized measures of childcare supply and cost based on our baseline ACS specification ($b = 2, t = 20$), with controls for age, education, race, citizenship, partner presence, health, disability, and school enrollment. State and year fixed effects are included, and standard errors are clustered at the individual level to account for respondents who appear more than once in the data.

Panel A shows that childcare supply is positively correlated with labor market outcomes for women: A one-standard-deviation increase corresponds to a 3.5 percentage point increase in labor force participation and employment and a 4.7 percentage point increase in full-time work. By contrast, no significant effects are observed for men. Childcare cost is negatively associated with women's outcomes (magnitudes ranging from –3.55 to –4.15 percentage points), with a stronger effect for full-time employment and, again, no significant relationship for men. Based on these estimates, labor force participation among women with young children would be expected to increase by approximately 7 percentage points with a one-standard-deviation higher childcare supply and one-standard-deviation lower childcare cost. The 7 percentage point combined effect of improved availability and affordability is economically meaningful, especially in the context of mothers with young children, whose baseline participation is about 72.6 percent (a nearly 10 percent gain).

Panel B separates the supply into home- and center-based care. Home-based supply is strongly associated with greater participation and employment for women, while center-based supply is positively associated with only full-time work. The stronger association between center-based supply and full-time employment likely reflects the better alignment between center-based care and the demands of full-time work. Center-based care is likely to better support full-time work by offering consistent hours, professional staffing, and fewer disruptions compared with home-based arrangements. Home-based care may be more flexible, making it more compatible with part-time or intermittent work. In these regressions, cost remains negatively associated with women's outcomes, but the magnitude of the effect on participation and employment decreases and loses statistical significance. As discussed previously, our cost measure is likely to be less informative once we split the supply measure into home-based and center-based care because part of the cost variation is mechanically tied to the provider mix. Once supply types are entered separately, the cost coefficient reflects the residual variation in prices net of the supply composition attenuating its magnitude. However, in general, cost remains negatively associated with women's outcomes, with no

significant effects for men. Taken together, the results in Table 10 highlight the asymmetric responsiveness to childcare constraints: Labor market outcomes for mothers of young children are sensitive to both supply and cost (with similar magnitudes), while outcomes for fathers are not. Furthermore, our estimates suggest that improvements in childcare supply and affordability have the potential to substantially shift labor market attachment among mothers of young children.

Table A.2 in the Appendix repeats this analysis for the sample of women aged 20 to 64 (the age range covered in the ACS). The coefficients on supply and cost are slightly lower, but the main patterns and conclusions remain. Based on these estimates, labor force participation among women with young children in the expanded age group would be expected to increase by approximately 6.2 percentage points with a one-standard-deviation higher childcare supply combined with a one-standard-deviation lower childcare cost. Table A.3, also in the Appendix, presents the results of weighted regressions.[24] In these regressions, a one-standard-deviation higher childcare supply combined with a one-standard-deviation lower childcare cost is associated with an increase of approximately 5.4 percentage points in labor force participation among women with young children. The weighting redistributes the influence across the sample to match the characteristics of the population. Groups with a weaker response to childcare need to be more heavily weighted in these regressions, pulling the average effect downward. In other words, this pattern reflects heterogeneity in responsiveness to childcare across groups, which we discuss next.

Tables 11 to 13 show results from regressions for selected groups of women, revealing a substantial heterogeneity in the response to the provision and cost of childcare. The effects vary systematically by income, education, and number of children, suggesting distinct constraints between groups. The education-based splits in Table 11 show that women with advanced degrees exhibit large, significant effects of both supply (mainly center-based supply) and cost, while those with a high school education or less show more muted and often insignificant responses. As shown in panel A, a one-standard-deviation increase in supply corresponds to a 7.4 percentage point increase in labor force participation for highly educated mothers, compared with a near-zero effect for mothers who are less educated. Cost effects follow a similar pattern: –4.3 percentage points for highly educated mothers versus a statistically insignificant estimate for those with less education. These patterns suggest that childcare constraints bind more tightly for women with higher labor market returns.

[24] In this case, we also use the 160 replicate weights available in the CPS ASEC to calculate bootstrap standard errors.

Highly educated women may prefer center-based care because it is perceived to offer higher-quality service and greater reliability, especially for full-time employment. However, since centers tend to be more expensive, the cost coefficient is larger for this group, reflecting a stronger sensitivity to price despite this group's higher earnings. For women with less education, weaker responsiveness may reflect limited employment opportunities. Alternatively, these women may depend on informal childcare arrangements that are not well captured by our measures, or they may be entirely excluded from access to formal childcare options, appearing less sensitive.

Not surprisingly, income splits tell a story similar to education splits—see Table 12. Among high-income mothers (defined as those having household income in the top quartile of the income distribution in a given state and year), the supply of childcare is strongly associated with labor market outcomes. For example, a one-standard-deviation increase in supply is associated with a 7.8 percentage point increase in labor force participation and a comparable reduction in cost, –9.8 percentage points. For low-income mothers, the corresponding estimates are small and statistically insignificant. One possible explanation for the no-cost effect on low-income families is that they are more likely to receive targeted childcare subsidies, which might buffer them from price variation in the broader market. If out-of-pocket costs are already low or capped, marginal changes in average cost may have limited impact. Panel B shows that the composition of supply—that is, home- versus center-based care—matters differently for each income group. For high-income mothers, both types of supply are positively associated with participation in the labor force. By contrast, low-income mothers respond primarily to home-based care. This suggests that home-based care may be more accessible or better aligned with the constraints faced by low-income families, while center-based care likely complements full-time employment more directly. This segmentation in the childcare market should not be ignored when designing childcare policy.

Family structure further differentiates responsiveness, as documented in Table 13. Mothers with multiple children show greater cost sensitivity, likely reflecting compounding financial burdens. Supply effects are similar between groups, but center-based care has a stronger association with full-time employment for mothers with multiple children, possibly due to scheduling economies and reduced marginal coordination costs. In sum, mothers with more education and higher income show greater responsiveness to both supply and cost, consistent with greater attachment to the labor market and greater preferences for formal care. By contrast, mothers with less education or lower income appear less responsive, likely

due to limited job opportunities and a greater reliance on informal arrangements that were not captured well in our regression. For mothers with multiple children, cost emerges as a particularly salient constraint, suggesting that affordability stresses compound with family size.

4.2 PSID

Data Description and Men–Women Initial Comparisons

We also use data from the PSID, a nationally representative sample that launched in 1968 with interviews of about 4,800 households. The PSID was originally designed to study income and poverty dynamics, with 60 percent of the initial sample drawn from a cross-national sample covering the 48 contiguous states and the remainder drawn from a national sample of low-income families responding to the Survey of Economic Opportunity. Later additions include immigrant refresher samples introduced to maintain national representativeness. The PSID conducted annual interviews until 1997 before switching to biennial interviews thereafter. It has tracked original families and their descendants across generations, creating a multigenerational panel with detailed socioeconomic information. In the most recent wave (2023), about 9,500 households were interviewed. Through a restricted-data agreement with the University of Michigan, we obtained information on respondents' census block group of residence.

As before, our analysis focuses on the same five New England states and the PSID years that align with the ACS analysis. Because PSID interviews are biennial, our sample includes only the seven odd years from 2011 through 2023. The number of households that are interviewed each year in these five states ranges from 220 to 252. We are able to match all households to the supply and cost measures we construct—about 90 percent at the block-group level and the remainder at either the tract or county level—but given additional age restrictions (prime age), our regression samples are very small, and results should be interpreted with caution.

The descriptive statistics in Table 14, which focus on heads of households and spouses within the prime-age category, show consistently higher labor force participation and employment rates among men compared with women across all child categories. Among parents with children under 5 years old, 95.9 percent of fathers are in the labor force, and 94.8 percent are employed, compared with 77.7 percent and 72.8 percent of mothers, respectively. The corresponding gender gaps are 18.2 percentage points and 22 percentage points, respectively. As in the CPS data, gender gaps narrow (to about 12.5 percentage points and 12.3

percentage points) when children enter the school system. These patterns again underscore the persistence of gender disparities in labor market attachment that start with the arrival of children. Regression-adjusted estimates (see Table 15) show that these gaps barely change when we control for age, race, education, partner presence, poor health, state, and year. Using men with young children as the reference group, we find that women with young children are 18.6 percentage points less likely to be in the labor force and 22 percentage points less likely to be employed after we control for these characteristics. The fact that demographic controls have little effect on the observed gender gaps in labor outcomes suggests that the PSID sample is more homogeneous than the much larger CPS sample analyzed in the previous section. Also, on average, women in the PSID sample show higher labor market attachment than those in the larger CPS sample. For example, though the participation of women with young children is 72.5 percent in the CPS data, the corresponding number is 77.7 percent in the PSID.[25]

Results

Table 16 presents regression estimates of childcare supply and cost effects on labor force participation and employment. All models include standardized measures of cost and supply, so the coefficients reflect the change in labor outcomes associated with a one-standard-deviation increase in each measure. In these regressions, because the sample is so small, supply and cost effects are interacted with gender, allowing coefficients to vary for men and women. The columns labeled "All" use the full PSID sample, whereas the columns labeled "Kid" restrict the sample to respondents who have a child at any point during the sample period. Columns (1) and (4) include fixed effects for year and state and control for race, education, the presence of a partner, and health status. The remaining columns incorporate year and individual fixed effects to take advantage of the longitudinal dimension of PSID. All specifications include age-by-gender fixed effects to account for life-cycle variation. Regressions are unweighted, and standard errors are clustered at the individual level.

Across both labor market outcomes, supply is positively associated with labor market attachment for women, especially once individual fixed effects are included. The estimated effects are substantial. For women with young children (the Kid sample), the supply coefficients reach 5.7 for participation and 5.5 for employment. Cost is negatively associated with labor market outcomes for women, and the magnitudes are again sizable: The cost

[25]The difference is likely driven by education: 63.3 percent of women in the PSID sample of women with young children have a college degree or higher compared with 51.6 percent in the CPS (unweighted averages).

coefficients are –10 for labor force participation and –6.7 for employment in the Kid sample. These significant effects align with the numbers reported for highly educated and high-income women in the CPS. When disaggregating the supply into home- and center-based care (see Table 17), we find that the center-based supply drives the positive association between total supply and labor market outcomes documented in the previous table. The cost coefficients remain negative and similar in magnitude when we split the supply.

The stronger effect of center-based supply in the PSID relative to the ACS and the CPS reflects differences in sample composition. The PSID captures long-term respondents who likely have more stable family structures and employment histories. PSID respondents are more homogeneous and more stably attached to the labor force than the broader CPS population. This aligns with the CPS results, which show that highly educated mothers respond more strongly to the availability of center-based care. Since the PSID disproportionately includes such women, the estimated effects of the center-based supply are larger and more consistent. By contrast, ACS and CPS likely capture a wider range of family structures and employment patterns, including more marginally attached workers who may rely on informal or home-based care.

4.3 ACS versus Individual-level Results

The smaller coefficients in the ACS regressions probably reflect the limitations of working with aggregated data, even when when we focus on women with children and incorporate granular measures of supply and cost that span artificial geographical barriers. Aggregation at the block-group level over five-year periods compresses individual-level variation in labor market attachment and childcare needs, attenuating the estimated effects. Although our ACS approach targets a relevant subpopulation and extends childcare measures beyond the immediate block group, a risk of measurement error remains if the aggregated supply and cost variables do not fully capture the care environments families actually access. In addition, group-level covariates offer less precision than individual controls. These factors likely contribute to the smaller estimates observed in the ACS relative to individual-level regressions in the CPS and PSID. Finally, the slight age distinction (children under 5 in individual data versus children under 6 in the ACS) could also play a role, but this is unlikely, as estimates using under-6 definitions (instead of under-5) in the CPS data barely move the estimated effects (for brevity, the results are not reported here). However, our individual-level data are based on much smaller samples, and it is possible that relevant populations are not as well represented.

Nevertheless, the message across data sets is very consistent: Home-based childcare supply plays a critical role in supporting maternal participation in the labor market in these five New England states over our sample period. Its consistent positive association with employment outcomes suggests that flexible, localized care arrangements are essential to enable women to enter and stay in the workforce. At the same time, the cost of childcare remains a powerful constraint: Higher prices are strongly linked to lower labor force participation and employment rates, even for highly educated, high-income women.

4.4 Accounting for Possible Endogeneity in Supply Location

One concern about our analysis of the effects of childcare supply is that the location of childcare providers may not be random. For business reasons, providers might strategically locate in areas with better employment opportunities. Endogeneity is likely more pronounced in center locations than among home-based providers. A center might strategically choose its location in response to demand, zoning regulations, and neighborhood characteristics. By contrast, home-based providers often operate out of their own homes, likely making their geographic distribution more constrained by personal and residential factors. Our results on home-based supply appear to be robust, but recognizing the endogeneity of childcare supply is essential both for assessing potential bias in our current estimates for center-based supply measures and for designing interventions that equitably expand access and support working families. In other words, the positive correlation between maternal labor outcomes and childcare supply could be explained by local labor market conditions and opportunities. Although the lack of effects for fathers of young children in the CPS and for women without children in the ACS partly alleviates this concern, we explore the issue further by constructing plausibly exogenous instruments for childcare supply.

We consider various instruments—based on previous studies adapted to our scenario—that fall into two broad categories. The first set of instruments focuses on the fact that immigrant women are disproportionately represented in the childcare sector. Ali et al. (2022) show that nearly one-fifth of US childcare workers were immigrants, with an even higher share for urban areas. Powell (2025) indicates that immigrants made up 27 percent of the childcare workforce in Massachusetts and Connecticut. More broadly, studies of the impact of low-skilled immigration on women's labor supply find that such inflows into a country increase hours worked and the likelihood of working long hours, particularly among highly skilled

women (Cortés and Tessada 2011, Cortés 2023).[26] The other set of instruments focuses on public pre-K spots available for children. When public pre-K programs expand, more spots are available for any remaining children. However, competition for childcare workers can have unintended consequences. Some childcare workers may leave the private sector when pre-K jobs are available in nearby public schools that provide better compensation and higher job security. Brown (2019) finds that when 4-year-olds moved into public pre-K in New York City, private providers lost revenue from older children and cut back on infant/toddler slots. However, Bassok et al. (2014) suggest that public pre-K expansion could have a positive impact on private childcare slots, depending on the design of government policies. Indeed, they find that universal preschool expansion in Georgia had a crowd-in effect on the number of childcare centers.

Our instruments exploit spatial variation in the presence of foreign-born women and public pre-K spots around each census block group. For the first set, we use the ACS five-year estimates on foreign-born women, which are available at only the census-tract or higher level. Specifically, we calculate the number of foreign-born women aged 20 to 64 living in census tracts with centroids that fall within a certain distance from the census-tract centroid for the block group in question. To reduce mechanical correlation with local outcomes, we then exclude the foreign-born women aged 20 to 64 living in the census tract of the block group in question, since they could be among the survey respondents for that block group. This yields a distance-based doughnut measure for the census tract. We then assign the same IV value to each block group within that tract.[27]

For the second set of instruments, we use annual school-level data from the National Center for Education Statistics. These data include school type (public or private), enrollment by grade, and the location of each school. We first sum up pre-K enrollment by year in all public schools located within a certain distance from the census block group's centroid. To preserve exogeneity with respect to local outcomes, we then exclude public pre-K enrollment that was in the immediate vicinity of that block group and also in that block group's school district. These excluded public pre-K spots are potentially available for all under-school-age children living in the block group in question and therefore could have a direct impact on their mothers' labor outcomes. For the ACS regressions, we calculate five-year moving averages of this pre-K IV to match with the ACS data. For the CPS and PSID regressions, we

[26] Migration flows might have even helped keep prices in check (see Cortés 2008).

[27] We match this IV with the CPS and PSID data by the end year of each round of the ACS five-year estimates later.

use the yearly IV values. We try different distance cutoffs for the radius of the interior and exterior ring of this doughnut measure to test its robustness for the regressions. By relying on the composition of nearby but non-overlapping neighborhoods, these two sets of instruments capture exogenous variation that is plausibly unrelated to unobserved determinants of childcare demand or labor supply within the block group itself.

In the ACS regressions, we begin by using a foreign-born IV to instrument total supply, with a 10-mile cutoff for the exterior ring. We then use a pre-K IV, applying distance cutoffs of 6 miles for the exterior ring and 2 miles for the interior ring. Finally, we use both IVs together to instrument total supply. In all these regressions, the IVs pass the weak identification and under-identification tests. Figure 4 displays the total-supply coefficient and its 95 percent confidence interval from each of the three IV regressions and includes the OLS estimate for reference. The IV estimates of total supply are significantly higher than the OLS estimate. They range from 6.4 to 10.9 for the labor force participation regressions and from 6.4 to 10 for the employment regressions. That means that a one-standard-deviation increase in total supply alone could result in a 6 to 11 percentage point increase in mothers' labor force participation and employment rates. We also try a distance cutoff of 5 miles for the exterior ring and a distance cutoff of t3 miles for the interior ring of the pre-K IV, and we find similar results in the alternative IV regressions.

We use analogous instruments in the CPS, and the results are summarized in Figure 5.[28,29] When we use the pre-K instrument, we find large effects for all outcomes, but only the full-time employment effect is significant at conventional levels. When we instead use the foreign-born-women IV, we find large and significant supply effects for all labor outcomes considered. Regarding magnitude, the IV estimates are about two to four times larger than the corresponding OLS estimates. These IV estimates from the ACS and CPS regressions may be considered upper-bound estimates. The fact that they are significantly larger than the OLS estimates suggests that the exogenous supply shifts captured by our instruments may primarily benefit high-income, highly educated mothers—precisely the group for which we observe larger OLS effects. These mothers may be better positioned to take advantage of childcare supply expansions that are not driven by local demand conditions.

[28]The pre-K IV is defined exactly the same, while we use a five-mile cutoff for the foreign-born IV, as it produces more precise estimates.

[29]Our PSID sample is too small for IV regressions to work because there is not enough variation in IVs.

5 Conclusion

Using both block-group and individual-level data, our analysis provides robust evidence that improving both the affordability and availability of childcare—especially home-based options—can substantially increase maternal labor market attachment. Home-based supply is consistently and significantly associated with higher participation and employment in the five New England states we studied, especially in non-urban and lower-income communities. Many women likely rely on home-care providers due to proximity, flexibility, and affordability. Given the documented decline in home-based childcare across New England and the United States, policymakers should think about whether it makes sense to stabilize and expand this segment of the childcare market. Policy interventions could include targeted subsidies or licensing support for home-based providers, streamlined compliance processes, and incentives for new entrants in underserved areas. Center-based care shows more selective effects, with stronger associations in urban and high-income settings and for full-time employment.

Childcare cost is a powerful constraint on maternal labor force participation and employment across the board. However, its effects are not uniform: The response varies by income, education, and family structure. For some women, limited job opportunities, combined with low income, may help explain their relatively weak participation response to childcare prices. In addition, some low-income mothers receive childcare vouchers, further dampening their sensitivity to market rates. By contrast, childcare constraints might bind more tightly for women with potentially higher labor market returns because these women may need to rely on childcare centers that align better with full-time job schedules, and center-based care is more expensive.[30]

Our analysis suggests that increasing childcare access and affordability can help mothers maintain attachment to the labor market, even when their participation is part time or intermittent. Numerous studies show that continuous labor attachment is critical to mothers' long-term earnings, career continuity, and access to benefits. The economic impact of childcare extends well beyond families with young children: ReadyNation (2026) estimates

[30]Unlike our study, Araujo et al. (2025) find that higher childcare costs reduce labor force participation of lower-income mothers relatively more. Their identification method relies not on childcare wages but on state-level variation in childcare regulations. Dow (2025) uses a similar instrument based on childcare regulations to estimate the effect of childcare cost on county-level birth rates and finds significant effects of childcare cost on overall fertility, first-birth timing, and birth spacing between children. Similar to our findings, she shows that birth rates for more educated women are more price sensitive than those for less educated women. Childcare regulations change infrequently, and those studies draw identification from changes in Delaware (2011), Nevada (2015), and Vermont (2016).

that insufficient care for under-school-age children in the United States costs employers $38 billion annually in lost productivity and costs federal and state governments $37 billion in foregone tax revenue.

Both the public and private sectors can play important roles in increasing childcare access and affordability and, in turn, improving women's labor outcomes. Governments may consider providing targeted subsidies to childcare providers, reducing licensing and compliance burdens, and facilitating training to help providers improve service quality. Employers can invest in on-site, affiliated, or subsidized childcare, which can also benefit them through improved employee retention.

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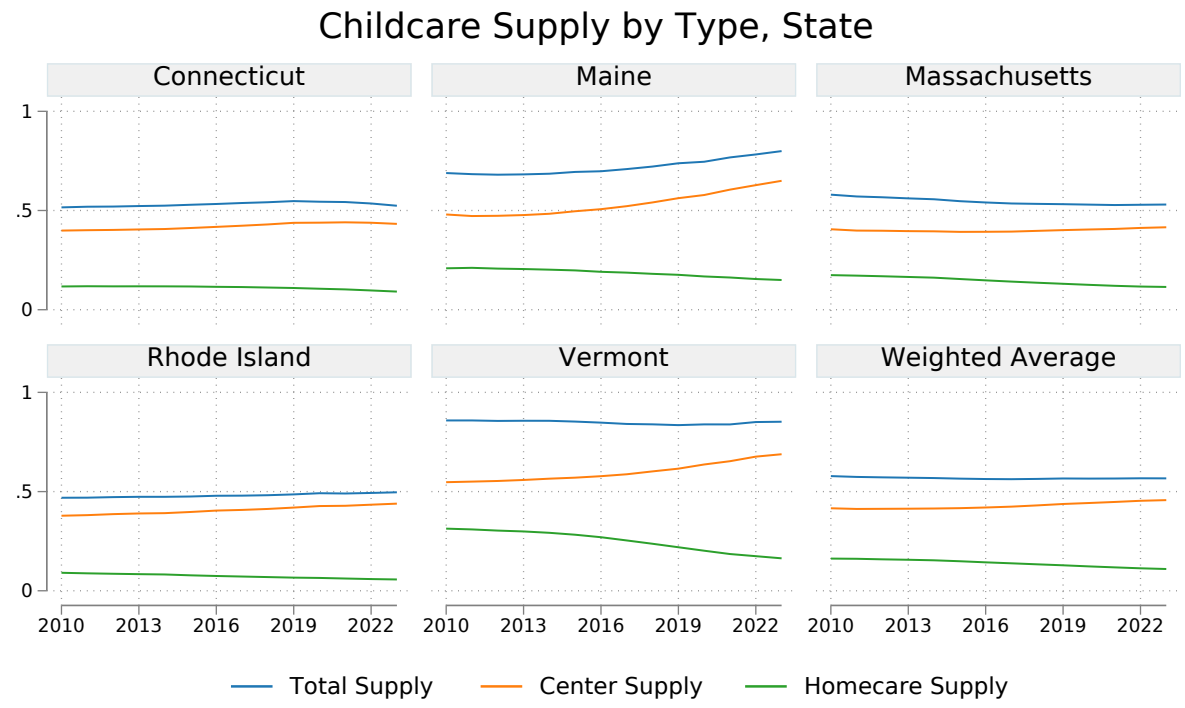
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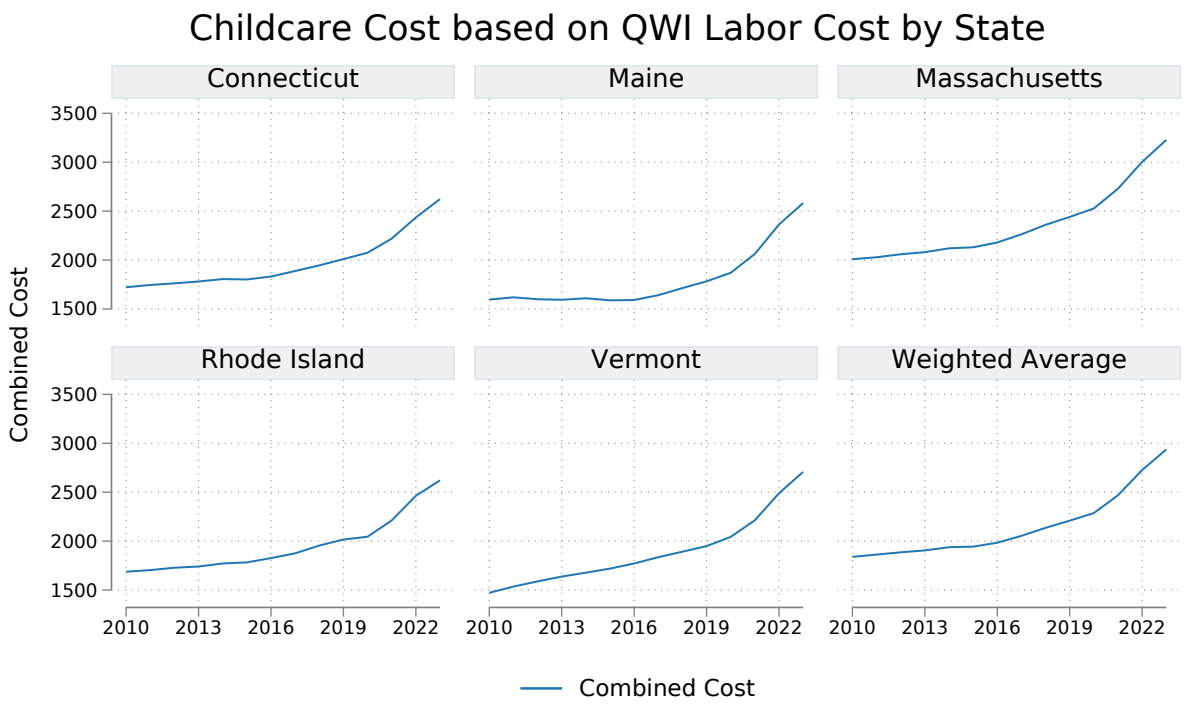
Figure 1. Supply



Aggregated from blockgroup level using female population age 20-64 as weight.
Specification: b = 2, t = 20, 5-year moving average.
Source: Authors' calculations using ACS and granular provider location data

Notes: Authors' calculations childcare licensing data and ACS.

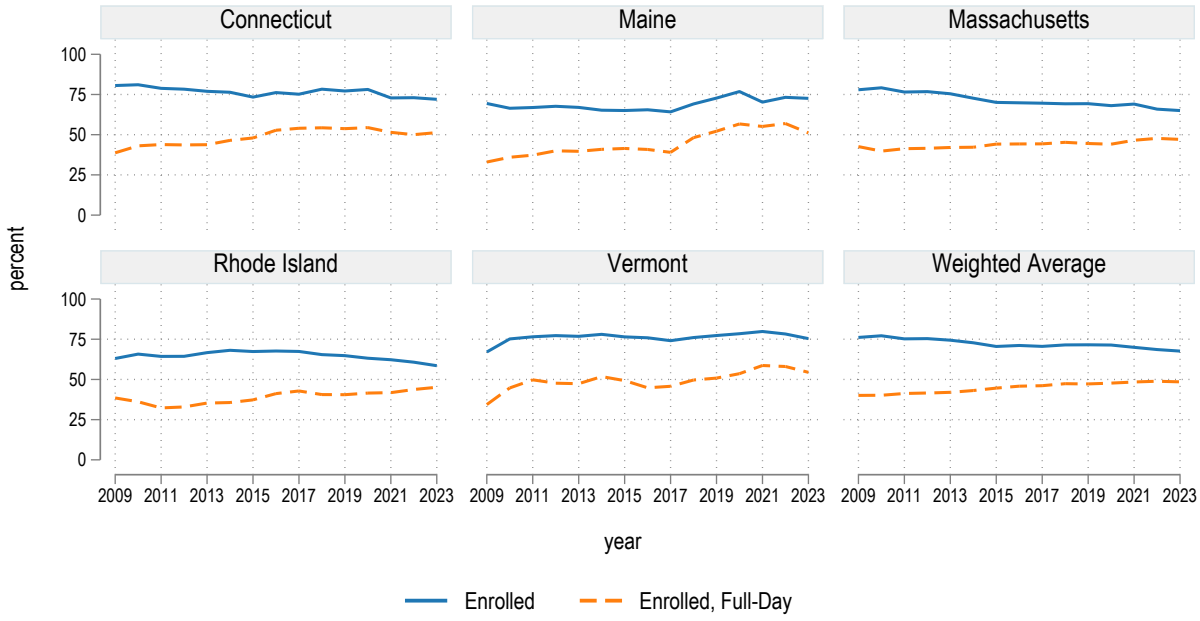
Figure 2. Cost



Aggregated from blockgroup level using female population age 20-64 as weight.
Specification: b = 2, t = 20, 5-year moving average.
Source: Authors' calculations using QWI, ACS, and granular provider location data. Scale speaks to monthly wages for childcare worker

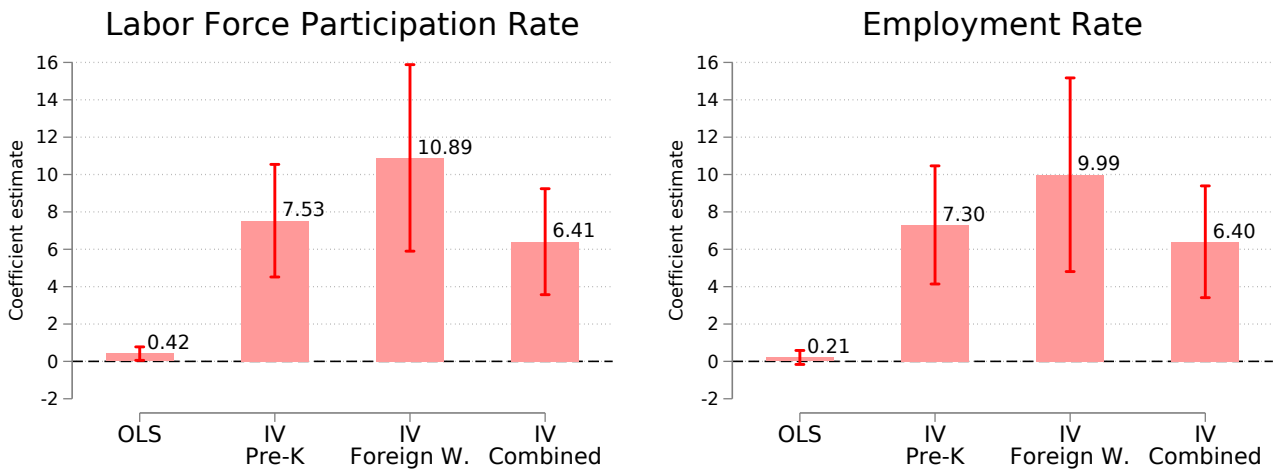
Notes: Authors' calculations childcare licensing data and ACS.

Figure 3. Enrollment of 3 to 5 year-olds



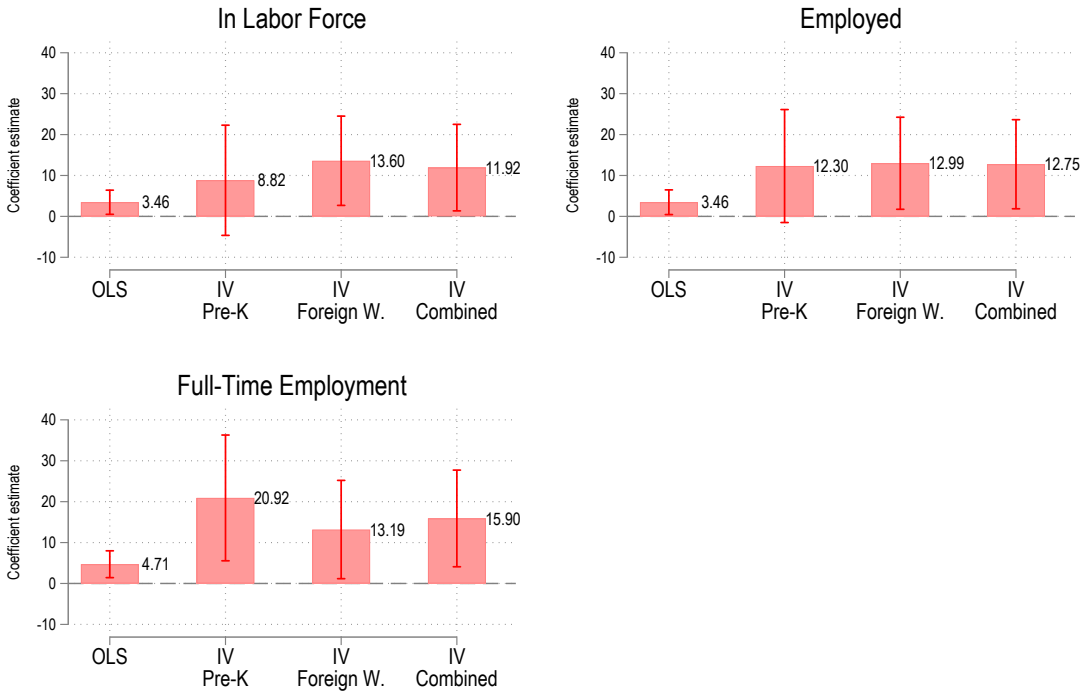
Notes: Authors' calculations using data from the October supplement of the Current Population Survey. 5-year rolling averages.

Figure 4. Supply Effects: IV results by Instrument, ACS



Notes: Authors' calculations using childcare licensing data and ACS data. The height of each bar represents a different OLS or IV estimate, as indicated, while the whiskers represent 95 percent confidence intervals. Estimates for mothers of children under 6 at the block-group level.

Figure 5. Supply Effects: IV Results by Instrument, ASEC CPS



Notes: Authors' calculations using childcare licensing data and ASEC CPS data. The height of each bar represents a different OLS or IV estimate, as indicated, while the whiskers represent 95 percent confidence intervals. Estimates for mothers of children under 5 at the individual level.

Table 1. Comparing Block Groups Based on Childcare Providers located in that Block Group

	Type of Provider				Pairwise t-test, Mean Diff.		
	(1) Both	(2) Home	(3) Center	(4) None	(1)-(2) Pairwise t-test	(1)-(3) Pairwise t-test	(1)-(4) Pairwise t-test
Rental price, median	984	996	1137	1094	-12***	-152***	-110***
	(3.2)	(2.2)	(4.4)	(3.1)			
Median house value (1000s of USD)	319	308	418	390	11***	-99***	-70***
	(1.2)	(.79)	(2.1)	(1.4)			
Median household income (1000s of USD)	76	76	87	86	.18	-11***	-9.8***
	(.25)	(.18)	(.35)	(.25)			
Share of families with children under 5 in poverty	.14	.14	.12	.13	-.0071***	.014***	.012***
	(.002)	(.001)	(.002)	(.001)			
Share of pop. in poverty	.11	.12	.11	.11	-.0036***	.0027**	.0014
	(.001)	(.001)	(.001)	(.001)			
Population	1598	1417	1368	1185	181***	231***	413***
	(4.3)	(2.8)	(4.4)	(2.6)			
Share of pop. under 5	.056	.059	.053	.055	-.0031***	.0026***	.00062**
	(0)	(0)	(0)	(0)			
Population density (sq mi) for total population	4399	6410	4917	6423	-2011***	-518***	-2024***
	(50)	(41)	(67)	(55)			
LFPR: 16+ population	.67	.68	.66	.67	-.0097***	.014***	.0056***
	(.001)	(0)	(.001)	(.001)			
LFPR: Women with any children under 6	.75	.75	.73	.74	-.0048**	.021***	.014***
	(.002)	(.001)	(.002)	(.002)			
Employment: 16+ population	.62	.63	.62	.62	-.0052***	.0083***	.0025***
	(.001)	(.001)	(.001)	(.001)			
Employment: Women with any children under 6	.7	.7	.69	.69	-.000091	.012***	.01***
	(.002)	(.001)	(.002)	(.002)			
Slots-to-children, 20 min.	.61	.56	.61	.54	.055***	.002	.079***
	(.002)	(.001)	(.002)	(.001)			
Childcare cost proxy	2079	2081	2230	2184	-1.6	-151***	-105***
	(3.5)	(2.5)	(4.2)	(3)			
Share of observations	.187	.347	.159	.309			
Total observations	127540						

Notes: Authors' calculations using ACS and granular provider location data.

Table 2. Comparing Block Groups Based on Childcare Providers within 10-Minute Drive

	Type of Provider				Pairwise t-test, Mean Diff.		
	(1) Both	(2) Home	(3) Center	(4) None	(1)-(2) Pairwise t-test	(1)-(3) Pairwise t-test	(1)-(4) Pairwise t-test
Rental price, median	1067	768	917	700	299***	150***	367***
	(1.6)	(5.8)	(9.7)	(6.2)			
Median house value (1000s of USD)	358	245	382	235	113***	-24***	123***
	(.69)	(2)	(5.6)	(2.9)			
Median household income (1000s of USD)	81	73	85	64	8.3***	-3.3***	18***
	(.13)	(.5)	(.85)	(.52)			
Share of families with children under 5 in poverty	.13	.12	.12	.15	.016***	.019***	-.013***
	(.001)	(.003)	(.004)	(.004)			
Share of pop. in poverty	.11	.086	.084	.11	.028***	.03***	.005**
	(0)	(.001)	(.001)	(.001)			
Population	1388	1302	1168	1021	86***	220***	367***
	(1.8)	(9.7)	(11)	(8.5)			
Share of pop. under 5	.057	.047	.044	.044	.011***	.014***	.013***
	(0)	(0)	(.001)	(0)			
Population density (sq mi) for total population	6254	130	257	94	6124***	5997***	6160***
	(28)	(3.2)	(9.8)	(6.3)			
LFPR: 16+ population	.67	.66	.63	.6	.016***	.044***	.07***
	(0)	(.002)	(.002)	(.002)			
LFPR: Women with any children under 6	.74	.74	.74	.7	.00056	.0098*	.047***
	(.001)	(.004)	(.005)	(.005)			
Employment: 16+ population	.63	.62	.6	.57	.0055***	.027***	.06***
	(0)	(.002)	(.002)	(.002)			
Employment: Women with any children under 6	.7	.71	.71	.66	-.013**	-.016***	.034***
	(.001)	(.005)	(.006)	(.005)			
Slots-to-children, 20 min.	.59	.34	.53	.22	.25***	.06***	.37***
	(.001)	(.004)	(.012)	(.005)			
Childcare cost proxy	2151	1836	2079	1897	315***	72***	254***
	(1.6)	(7.7)	(11)	(10)			
Share of observations	.927	.027	.022	.026			
Total observations	127540						

Notes: Authors' calculations using ACS and granular provider location data.

Table 3. Block Group Female Employment Outcomes: Childcare Supply and Costs Levels Specification

	Labor Force Participation Rate	
	With any children under age 6	With no children
Supply	0.42 **	−0.08
	(0.18)	(0.10)
Cost	−1.91 ***	−0.15
	(0.33)	(0.17)
N	127,577	139,345
Adjusted R-squared	0.015	0.071
LHS Mean	74.5	77.6
LHS SD	29.2	15.3
	Employment Rate	
	With any children under age 6	With no children
Supply	0.21	−0.14
	(0.19)	(0.10)
Cost	−1.76 ***	−0.19
	(0.35)	(0.18)
N	127,577	139,345
Adjusted R-squared	0.025	0.088
LHS Mean	69.8	73.3
LHS SD	30.9	16.3

Notes: All regressions are run at the block group level using the preferred specification (b = 2, t = 20). Supply (total, home, and center) and cost variables represent 5-year moving averages and are standardized for easier comparison of the coefficients. The dependent variable is the percent of civilian women of age 20-64 by child status that are in the labor force or employed. We control for the percent of women age 25+ who hold a college degree or higher; the percent of women ages 20-34 and 35-49 out of all women age 20-64; and the percent of women age 15+ who were never married, divorced, or widowed. All specifications include county and year fixed effects. Standard errors are clustered at the block group level.

Table 4. Block Group Female Employment Outcomes: Alternative Specifications

	Labor Force Participation Rate								
Gaussian Decay Parameter	2	2	2	1	1	1	0	0	0
Max. Driving Time (mins)	20	10	30	20	10	30	20	10	30
Home	0.65 ***	0.61 ***	0.68 ***	0.68 ***	0.61 ***	0.79 ***	0.68 ***	0.61 ***	0.79 ***
	(0.23)	(0.19)	(0.26)	(0.23)	(0.19)	(0.26)	(0.23)	(0.19)	(0.26)
Center	0.13	−0.16	0.41 *	0.15	−0.15	0.43 **	0.16	−0.15	0.43 **
	(0.17)	(0.18)	(0.21)	(0.17)	(0.18)	(0.22)	(0.17)	(0.18)	(0.22)
Cost	−1.67 ***	−1.28 ***	−2.00 ***	−1.65 ***	−1.28 ***	−1.76 ***	−1.65 ***	−1.28 ***	−1.75 ***
	(0.35)	(0.26)	(0.49)	(0.35)	(0.26)	(0.51)	(0.35)	(0.26)	(0.51)
N	127,577	124,881	127,918	127,578	124,881	127,918	127,578	124,881	127,918
Adjusted R-squared	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
LHS Mean	74.5	74.6	74.5	74.5	74.6	74.5	74.5	74.6	74.5
LHS SD	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2
	Employment Rate								
Gaussian Decay Parameter	2	2	2	1	1	1	0	0	0
Max. Driving Time (mins)	20	10	30	20	10	30	20	10	30
Home	0.66 ***	0.55 ***	0.71 **	0.74 ***	0.55 ***	0.90 ***	0.75 ***	0.55 ***	0.90 ***
	(0.24)	(0.19)	(0.28)	(0.24)	(0.19)	(0.27)	(0.24)	(0.19)	(0.27)
Center	−0.09	−0.30 *	0.11	−0.03	−0.29	0.18	−0.03	−0.29	0.18
	(0.18)	(0.18)	(0.23)	(0.18)	(0.18)	(0.23)	(0.18)	(0.18)	(0.23)
Cost	−1.48 ***	−1.11 ***	−1.82 ***	−1.44 ***	−1.12 ***	−1.46 ***	−1.44 ***	−1.12 ***	−1.45 ***
	(0.36)	(0.27)	(0.51)	(0.37)	(0.27)	(0.54)	(0.37)	(0.27)	(0.54)
N	127,577	124,881	127,918	127,578	124,881	127,918	127,578	124,881	127,918
Adjusted R-squared	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
LHS Mean	69.8	69.8	69.7	69.7	69.8	69.7	69.7	69.8	69.7
LHS SD	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9

Notes: The Gaussian decay parameter determines the rate at which a childcare facility or child population is discounted based on travel time. The complete weighting formula is $e^{-\left(\frac{t^b}{1000}\right)}$, where b represents the decay parameter and t represents the driving travel time in minutes. The maximum driving time is a cutoff at which point a childcare facility or child population will be entirely discounted for the purpose of calculating supply or cost. All regressions are run at the block group level. Supply (total, home, and center) and cost variables represent 5-year moving averages and are standardized for interpretability. The dependent variable is the percent of civilian women of age 20-64 with a child under age 6 that are in the labor force or employed. We control for the percent of women age 25+ who hold a college degree or higher; the percent of women ages 20-34 and 35-49 out of all women age 20-64; and the percent of women age 15+ who were never married, divorced, or widowed. All specifications include county and year fixed effects. Standard errors are clustered at the block group level.

Table 5. Block Group Female Employment Outcomes: Weighted Specifications

	Labor Force Participation Rate	
	Total Population	Female Population 20-64
Home	0.55 **	0.55 **
	(0.23)	(0.23)
Center	−0.02	−0.02
	(0.19)	(0.20)
Cost	−1.48 ***	−1.34 ***
	(0.34)	(0.34)
N	127,577	127,577
Adjusted R-squared	0.016	0.015
LHS Mean	74.4	74.5
LHS SD	27.6	27.6
	Employment Rate	
	Total Population	Female Population 20-64
Home	0.51 **	0.49 **
	(0.24)	(0.24)
Center	−0.32	−0.31
	(0.20)	(0.21)
Cost	−1.51 ***	−1.39 ***
	(0.36)	(0.36)
N	127,577	127,577
Adjusted R-squared	0.025	0.025
LHS Mean	69.7	69.8
LHS SD	29.3	29.3

Notes: All regressions are run at the block group level using the preferred specification (b = 2, t = 20). Supply (total, home, and center) and cost variables represent 5-year moving averages and are standardized for interpretability. The dependent variable is the percent of civilian women of age 20-64 with a child under age 6 that are in the labor force or employed. We control for the percent of women age 25+ who hold a college degree or higher; the percent of women ages 20-34 and 35-49 out of all women age 20-64; and the percent of women age 15+ who were never married, divorced, or widowed. All specifications include county and year fixed effects. Standard errors are clustered at the block group level.

Table 6. Block Group Female Employment Outcomes: Heterogeneity Analysis

	Labor Force Participation Rate				
	Pre-COVID	Urban	Non-Urban	High Income	Low Income
Home	0.48*	0.17	0.82***	0.78*	0.76 ***
	(0.26)	(0.47)	(0.26)	(0.40)	(0.27)
Center	0.28	1.11**	0.14	0.80**	0.02
	(0.22)	(0.49)	(0.19)	(0.31)	(0.20)
Cost	−2.63 ***	−2.21 ***	−1.41 ***	−2.45 ***	0.29
	(0.45)	(0.48)	(0.54)	(0.42)	(0.55)
N	91,712	84,232	43,305	63,990	63,544
Adjusted R-squared	0.016	0.015	0.029	0.041	0.009
LHS Mean	73.5	74.6	74.3	75.7	73.2
LHS SD	28.6	29.7	28.1	27.6	30.6
	Employment Rate				
	Pre-COVID	Urban	Non-Urban	High Income	Low Income
Home	0.53*	0.35	0.72***	0.88**	0.83 ***
	(0.27)	(0.49)	(0.27)	(0.42)	(0.28)
Center	0.05	0.20	0.12	0.74**	−0.17
	(0.24)	(0.52)	(0.21)	(0.32)	(0.21)
Cost	−2.43 ***	−1.85 ***	−1.18 **	−2.26 ***	0.94
	(0.48)	(0.51)	(0.55)	(0.44)	(0.58)
N	91,712	84,232	43,305	63,990	63,544
Adjusted R-squared	0.021	0.028	0.032	0.038	0.025
LHS Mean	68.3	69.1	71.0	72.7	66.8
LHS SD	30.4	31.6	29.3	28.7	32.7

Notes: The "Pre-COVID" specification restricts observations to 2010 through 2019. The "Urban" specification restricts observations to block groups with a population density ≥1,000 per square mile. The "High Income" specification is restricted to block groups where the median household income exceeds the annual median of the distribution of median household incomes across all block groups. The "Non-Urban" and "Low Income" specifications are the complements to "Urban" and "High Income," respectively. All regressions are run at the block group level using the preferred specification (b = 2, t = 20). Supply (total, home, and center) and cost variables represent 5-year moving averages and are standardized for interpretability. The dependent variable is the percent of civilian women of age 20-64 with a child under age 6 that are in the labor force or employed. We control for the percent of women age 25+ who hold a college degree or higher; the percent of women ages 20-34 and 35-49 out of all women age 20-64; and the percent of women age 15+ who were never married, divorced, or widowed. All specifications include county and year fixed effects. Standard errors are clustered at the block group level.

Table 7. CPS Labor Market Outcomes by Presence of Children: Weighted Averages

Group	In Labor Force		Employed		Emp. Fulltime		Observations	
	Male	Female	Male	Female	Male	Female	Male	Female
No Child	84.6	82.1	77.9	78.5	65.6	61.2	13,183	11,236
Children under 5	95.2	72.5	91.0	69.1	79.0	42.8	6,292	7,170
Older Children Only	92.5	80.3	88.0	76.7	78.5	50.7	12,566	17,514
								67,971

Notes: The LHS are dummies for labor force participation, employment, of full-time employment multiplied by 100. Weighted averages for individuals aged 25 to 54 years old in the group indicated in the first column. Sample period: 2010 to 2023. States included: Connecticut, Maine, Massachusetts, Rhode Island, and Vermont.

Table 8. CPS Labor Market Outcomes by Presence of Children: Differences across Groups Controlling for Other Characteristics

	In Labor Force	Employed	Full Time
Male × No Children	–3.01***	–3.28***	–2.36***
	(0.49)	(0.63)	(0.80)
Male × Older Children Only	0.59	0.31	2.49***
	(0.42)	(0.55)	(0.73)
Female × No Children	–4.53***	–2.11	–8.98***
	(1.50)	(1.68)	(2.12)
Female × Children under 5	–15.99***	–13.82***	–28.15***
	(1.64)	(1.82)	(2.27)
Female × Older Children Only	–5.26***	–3.54**	–16.80***
	(1.50)	(1.68)	(2.14)
Avg. Men, Child under 5	94.8	90.1	78.1
Obs	67961	67961	67961
R sq.	0.209	0.192	0.172
Errors	cluster	cluster	cluster
FE	st yr	st yr	st yr

Notes: The LHS are dummies for labor force participation, employment, of full-time employment multiplied by 100. Regressions restricted to individuals aged 25 to 54 years old in the group indicated in the column headings. Controls: age, education, race, citizenship status, presence of partner, health, disability, and school/college enrollment. Year and state FE in all regressions. Unweighted regressions. Standard Errors, in parentheses, are clustered at the individual level. Sample period: 2010 to 2023. States included: Connecticut, Maine, Massachusetts, Rhode Island, and Vermont.

Table 9. Paid Childcare Usage and Spending in the ASEC-CPS
Our States compared to the Rest

	Age of Child							Spending
	< 1	1	2	3	4	5	6+	to Income
Our States								
Pays for childcare to work	20.8	31.9	33.8	38.7	40.6	30.9	18.2	14.2
	(41.2)	(45.8)	(47.1)	(47.8)	(48.8)	(45.5)	(35.7)	(13.5)
Mother in Labor Force	68.2	70.9	69.3	72.2	72.3	71.9	76.3	
	(45.5)	(44.1)	(45.2)	(42.7)	(43.2)	(44.2)	(41.3)	
Mother Educ., College+	52.1	47.9	48.8	46.3	48.9	46.8	45.9	
	(49.5)	(49.4)	(49.5)	(49.4)	(49.6)	(49.4)	(49.3)	
All Other States								
Pays for childcare to work	15.6	26.1	28.2	31.4	31.4	26.5	13.8	13.9
	(36.7)	(44.2)	(44.9)	(46.3)	(46.4)	(44.1)	(33.0)	(13.8)
Mother in Labor Force	58.4	62.9	63.1	63.6	65.0	65.8	70.0	
	(48.3)	(47.2)	(47.1)	(46.9)	(46.3)	(46.1)	(44.2)	
Mother Educ., College+	36.5	35.8	34.6	34.2	34.3	34.6	32.9	
	(48.3)	(48.1)	(47.7)	(47.6)	(47.5)	(47.7)	(47.1)	

Notes: Population weighted averages and standard deviations (in parentheses). Our states: Connecticut, Maine, Massachusetts, Rhode Island, and Vermont. Spending is conditional on paying for childcare to work and lumps all children in a family unit together. Years 2010 to 2023 combined.

Table 10. CPS Labor Market Outcomes: The Impact of Childcare Supply and Costs

	Women with Children < 5			Men with Children < 5		
	In Labor Force	Employed	Full Time	In Labor Force	Employed	Full Time
	Panel A: Total Supply and Cost					
Supply	3.46**	3.46**	4.71***	–0.29	0.22	1.26
	(1.51)	(1.54)	(1.67)	(0.77)	(1.04)	(1.40)
Cost	–3.55**	–3.89***	–4.15***	0.11	0.87	1.31
	(1.45)	(1.48)	(1.54)	(0.66)	(0.91)	(1.29)
	Panel B: Supply Types and Cost					
Supply, Home	4.39***	4.64***	2.41	–0.04	0.38	0.08
	(1.34)	(1.37)	(1.51)	(0.76)	(0.98)	(1.31)
Supply, Center	1.47	1.38	3.32**	–0.24	0.07	1.09
	(1.17)	(1.20)	(1.32)	(0.61)	(0.80)	(1.10)
Cost	–1.60	–1.78	–3.98**	0.17	1.07	0.95
	(1.63)	(1.66)	(1.79)	(0.82)	(1.10)	(1.51)
Avg. LHS	72.6	69.2	42.3	94.8	90.1	78.0
Obs	7158	7158	7158	6281	6281	6281
R sq.	0.081	0.101	0.069	0.137	0.145	0.096
Errors	cluster	cluster	cluster	cluster	cluster	cluster
FE	st yr	st yr	st yr	st yr	st yr	st yr

Notes: The LHS are dummies for labor force participation, employment, or full-time employment multiplied by 100. Regressions restricted to individuals aged 25 to 54 years old in the group indicated in the column headings. Supply and cost measures correspond to the baseline **b2/t20** combination and are standardized for easier comparison of the coefficients. Additional controls: age, education, race, citizenship status, presence of partner, health, disability, and school/college enrollment. Year and state FE included in all regressions. Unweighted regressions. Standard Errors, in parentheses, are clustered at the individual level. Sample period: 2010 to 2023. States included: Connecticut, Maine, Massachusetts, Rhode Island, and Vermont.

Table 11. CPS Labor Market Outcomes: The Impact of Childcare Supply and Costs. Education

	High School or Less			Advanced Degree		
	In Labor Force	Employed	Full Time	In Labor Force	Employed	Full Time
	Panel A: Total Supply and Cost					
Supply	–0.31	–0.32	4.17	7.36***	6.75**	10.92***
	(3.16)	(3.19)	(3.08)	(2.75)	(2.83)	(4.02)
Cost	0.96	0.30	–4.81*	–4.29*	–5.38**	–8.84***
	(3.32)	(3.33)	(2.85)	(2.59)	(2.61)	(3.19)
	Panel B: Supply Types and Cost					
Supply, Home	1.65	2.21	3.30	2.40	2.53	2.95
	(2.97)	(2.97)	(2.67)	(2.54)	(2.63)	(3.64)
Supply, Center	–1.01	–1.27	2.43	5.71***	5.11**	8.73***
	(2.50)	(2.54)	(2.51)	(2.09)	(2.13)	(3.12)
Cost	2.26	2.02	–3.82	–4.93*	–5.76**	–10.21***
	(3.75)	(3.76)	(3.30)	(2.75)	(2.78)	(3.74)
Avg. LHS	61.9	55.4	29.2	83.7	82.6	57.1
Obs	1766	1766	1766	1645	1645	1645
R sq.	0.063	0.081	0.051	0.101	0.106	0.030
Errors	cluster	cluster	cluster	cluster	cluster	cluster
FE	st yr	st yr	st yr	st yr	st yr	st yr

Notes: The LHS are dummies for labor force participation, employment, or full-time employment multiplied by 100. Regressions restricted to individuals aged 25 to 54 years old in the group indicated in the column headings. Supply and cost measures correspond to **b2/t20** and are standardized for easier comparison of the coefficients. Additional controls: age, education, race, citizenship status, presence of partner, health, disability, and school/college enrollment. Year and state FE in all regressions. Unweighted regressions. Standard Errors, in parentheses, are clustered at the individual level. Sample period: 2010 to 2023. States included: Connecticut, Maine, Massachusetts, Rhode Island, and Vermont. "High School or Less" means a women has completed 12 years of education or less. "Advanced Degrees" include master's, degrees from professional schools, and doctoral degrees.

Table 12. CPS Labor Market Outcomes: The Impact of Childcare Supply and Costs. Household Income

	Low Income			High Income		
	In Labor Force	Employed	Full Time	In Labor Force	Employed	Full Time
	Panel A: Total Supply and Cost					
Supply	0.42	–0.06	3.08	7.78***	7.93***	15.86***
	(3.14)	(3.14)	(2.61)	(2.93)	(2.98)	(3.72)
Cost	–3.99	–4.26	–5.04**	–9.79***	–9.75***	–13.11***
	(2.92)	(2.95)	(2.52)	(2.57)	(2.60)	(3.10)
	Panel B: Supply Types and Cost					
Supply, Home	6.47**	6.60**	3.78*	6.90***	7.05***	8.04**
	(2.69)	(2.70)	(2.28)	(2.36)	(2.51)	(3.32)
Supply, Center	–2.81	–3.33	1.06	4.67**	4.75**	11.28***
	(2.53)	(2.55)	(2.18)	(2.25)	(2.26)	(2.84)
Cost	0.85	0.84	–3.22	–7.82***	–7.74***	–12.67***
	(3.40)	(3.43)	(2.97)	(2.73)	(2.77)	(3.54)
Avg. LHS	56.5	49.8	22.7	83.1	82.1	57.5
Obs	1845	1845	1845	1759	1759	1759
R sq.	0.100	0.103	0.056	0.069	0.068	0.048
Errors	cluster	cluster	cluster	cluster	cluster	cluster
FE	st yr	st yr	st yr	st yr	st yr	st yr

Notes: The LHS are dummies for labor force participation, employment, or full-time employment multiplied by 100. Regressions restricted to individuals aged 25 to 54 years old in the group indicated in the column headings. Supply and cost measures correspond to **b2/t20** and are standardized for easier comparison of the coefficients. Additional controls: age, education, race, citizenship status, presence of partner, health, disability, and school/college enrollment. Year and state FE in all regressions. Unweighted regressions. Standard Errors, in parentheses, are clustered at the individual level. Sample period: 2010 to 2023. States included: Connecticut, Maine, Massachusetts, Rhode Island, and Vermont. "Low Income" means a women with household income below the 25th percentile in a given state and year. "High Income" includes women with household income above the 75th percentile in a given state and year.

Table 13. CPS Labor Market Outcomes: The Impact of Childcare Supply and Costs. Number of Children

	One Child			Multiple Children		
	In Labor Force	Employed	Full Time	In Labor Force	Employed	Full Time
	Panel A: Total Supply and Cost					
Supply	3.29	3.06	2.20	2.99	2.94	4.84**
	(2.62)	(2.68)	(3.08)	(1.82)	(1.86)	(1.95)
Cost	0.47	0.72	2.37	–6.14***	–6.76***	–8.03***
	(2.37)	(2.46)	(2.86)	(1.81)	(1.82)	(1.81)
	Panel B: Supply Types and Cost					
Supply, Home	3.16	3.90*	0.87	4.97***	4.92***	2.97*
	(2.26)	(2.32)	(2.73)	(1.64)	(1.67)	(1.79)
Supply, Center	1.85	1.41	1.63	0.76	0.74	3.22**
	(2.03)	(2.08)	(2.39)	(1.43)	(1.45)	(1.54)
Cost	1.52	2.32	2.28	–3.56*	–4.19**	–7.50***
	(2.60)	(2.70)	(3.19)	(2.06)	(2.07)	(2.12)
Avg. LHS	79.4	76.4	50.9	69.5	65.8	38.3
Obs	2254	2254	2254	4904	4904	4904
R sq.	0.099	0.114	0.076	0.077	0.098	0.068
Errors	cluster	cluster	cluster	cluster	cluster	cluster
FE	st yr	st yr	st yr	st yr	st yr	st yr

Notes: The LHS are dummies for labor force participation, employment, or full-time employment multiplied by 100. Regressions restricted to individuals aged 25 to 54 years old in the group indicated in the column headings. Supply and cost measures correspond to **b2/t20** and are standardized for easier comparison of the coefficients. Additional controls: age, education, race, citizenship status, presence of partner, health, disability, and school/college enrollment. Year and state FE in all regressions. Unweighted regressions. Standard Errors, in parentheses, are clustered at the individual level. Sample period: 2010 to 2023. States included: Connecticut, Maine, Massachusetts, Rhode Island, and Vermont. "One Child" means there is only one child in the household. "Multiple Children" includes women with multiple children (not necessarily all under 5).

Table 14. PSID Labor Market Outcomes by Presence of Children: Averages

Group	In Labor Force		Employed		Observations	
	Male	Female	Male	Female	Male	Female
No Child	90.2	92.5	86.9	88.0	358	374
Children under 5	95.9	77.7	94.8	72.8	194	224
Older Children Only	95.3	82.8	92.1	79.8	190	233
					1,573	

Notes: Percent of individuals who are in the labor force or employed. Averages for individuals aged 25 to 54 years old in the group indicated in the first column. Sample years: 2011, 2013, 2015, 2017, 2019, 2021, and 2023. States included: Connecticut, Maine, Massachusetts, Rhode Island, and Vermont.

Table 15. PSID Labor Market Outcomes by Presence of Children: Differences across Groups Controlling for Other Characteristics

	In Labor Force	Employed
Male × No Children	–5.48	–6.75*
	(3.34)	(3.60)
Male × Older Children Only	–0.95	–3.09
	(3.23)	(3.66)
Female × No Children	–4.78	–8.17*
	(3.33)	(3.67)
Female × Children under 5	–18.57***	–22.00***
	(4.32)	(4.65)
Female × Older Children Only	–13.49***	–14.86***
	(3.99)	(4.35)
Avg. Men, Child under 5	95.9	94.8
Obs	1573	1573
R sq.	0.096	0.109
Errors	cluster	cluster
FE	state year	state year

Notes: The LHS are dummies for labor force participation oe employment multiplied by 100. Regressions restricted to individuals aged 25 to 54 years old in the group indicated in the column headings. Controls: age, education, race, and poor health status. Year and state FE in all regressions. Unweighted regressions. Standard Errors, in parentheses, are clustered at the individual level. Sample years: 2011, 2013, 2015, 2017, 2019, 2021, and 2023. States included: Connecticut, Maine, Massachusetts, Rhode Island, and Vermont.

Table 16. PSID Labor Market Outcomes: The Impact of Childcare Supply and Costs

	In Labor Force			Employed		
	(1) All	(2) All	(3) With Kid	(4) All	(5) All	(6) With Kid
Supply × Male	1.35	0.62	0.81	1.27	0.44	–1.53
	(1.23)	(2.58)	(5.01)	(1.92)	(2.47)	(4.82)
Cost × Male	2.05	–1.55	3.12	2.37	0.96	8.59
	(1.74)	(3.06)	(4.05)	(1.99)	(3.51)	(5.50)
Supply x Female	–0.45	4.01*	5.66*	–2.09	3.09	5.47*
	(1.64)	(2.13)	(2.98)	(1.75)	(2.31)	(3.18)
Cost × Female	–3.48	–3.86	–9.99*	–4.39*	–4.50	–6.68
	(2.14)	(3.02)	(5.33)	(2.39)	(3.59)	(6.36)
Avg. LHS	89.2	89.4	88.0	85.7	86.0	85.3
Observations	1573	1573	793	1573	1573	793
Obs in Reg.	1573	1457	743	1573	1457	743
Adj. Rsq	0.118	0.505	0.504	0.132	0.516	0.533
Errors	cluster	cluster	cluster	cluster	cluster	cluster
FE	state year	ind year	ind year	state year	ind year	ind year

Notes: The LHS are dummies for labor force participation and employment multiplied by 100. Regressions restricted to individuals aged 25 to 54 years old, who are either head of household or spouses. Supply and cost measures correspond to the baseline **b2/t20** combination and are standardized for easier comparison of the coefficients. Additional controls in columns (1) and (4): education, race, presence of partner, and poor health status. "All" columns include all respondents, while "With Kid" columns include only respondents who have a child under 5 at any point within the sample period of the regressions (not necessarily all periods). Unweighted regressions. Standard errors, in parentheses, are clustered at the individual level. Sample years: 2011, 2013, 2015, 2017, 2019, 2021, and 2023. States included: Connecticut, Maine, Massachusetts, Rhode Island, and Vermont.

Table 17. PSID Labor Market Outcomes: The Impact of Childcare Supply Types and Costs

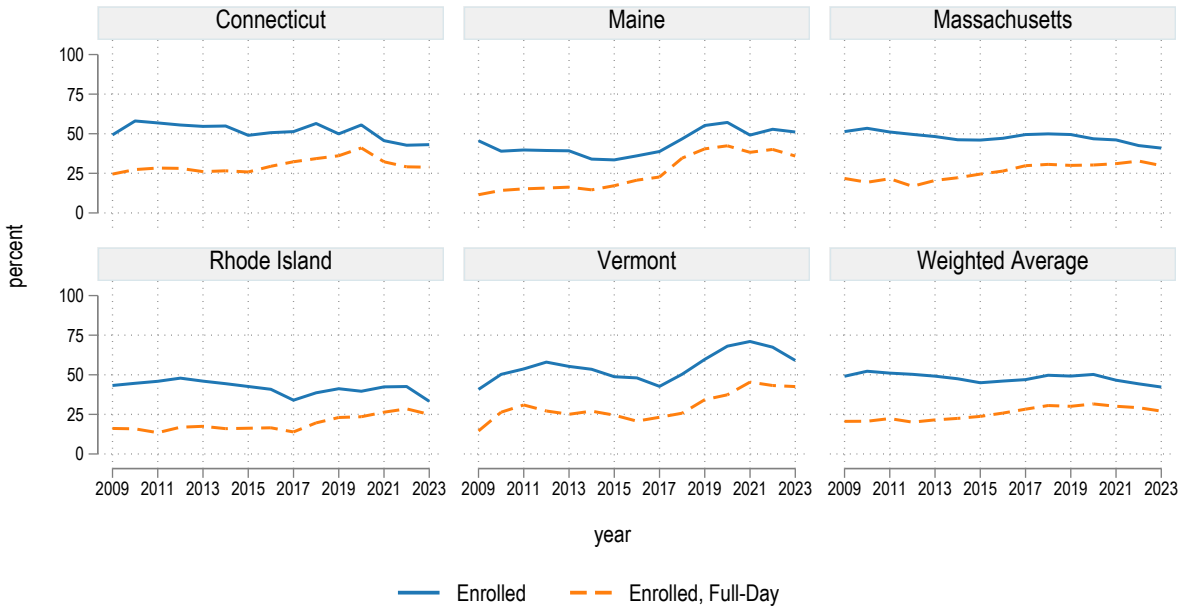
	In Labor Force			Employed		
	(1) All	(2) All	(3) With Kid	(4) All	(5) All	(6) With Kid
Supply Home × Male	0.75	2.03	–1.77	2.09	2.58	–0.77
	(1.75)	(1.89)	(3.60)	(1.78)	(2.05)	(3.90)
Supply Center × Male	1.24	–0.17	1.57	0.55	–0.58	–1.32
	(1.35)	(2.60)	(4.27)	(2.11)	(2.53)	(4.15)
Cost × Male	1.63	–1.63	2.29	2.81	1.09	8.24
	(1.83)	(3.07)	(4.12)	(2.22)	(3.53)	(5.70)
Supply Home × Female	–2.08	–2.50	–3.73	–2.99	–1.39	–2.63
	(1.79)	(2.12)	(3.39)	(1.91)	(2.50)	(3.77)
Supply Center × Female	0.71	6.27***	9.75***	–0.67	4.49*	8.66**
	(1.72)	(2.09)	(3.35)	(1.88)	(2.54)	(3.35)
Cost × Female	–4.93**	–4.47	–11.42**	–5.85**	–4.84	–7.76
	(2.17)	(3.30)	(5.75)	(2.43)	(3.74)	(6.80)
Avg. LHS	89.2	89.4	88.0	85.7	86.0	85.3
Observations	1573	1573	793	1573	1573	793
Obs in Reg.	1573	1457	743	1573	1457	743
Adj. Rsq	0.118	0.507	0.506	0.134	0.517	0.533
Errors	cluster	cluster	cluster	cluster	cluster	cluster
FE	state year	ind year	ind year	state year	ind year	ind year

Notes: The LHS are dummies for labor force participation and employment multiplied by 100. Regressions restricted to individuals aged 25 to 54 years old, who are either head of household or spouses. Supply and cost measures correspond to the baseline **b2/t20** combination and are standardized for easier comparison of the coefficients. Additional controls in columns (1) and (4): education, race, presence of partner, and poor health status. "All" columns include all respondents, while "With Kid" columns include only respondents who have a child under 5 at any point within the sample period of the regressions (not necessarily all periods). Unweighted regressions. Standard errors, in parentheses, are clustered at the individual level. Sample years: 2011, 2013, 2015, 2017, 2019, 2021, and 2023. States included: Connecticut, Maine, Massachusetts, Rhode Island, and Vermont.

Online Appendix – Not for Publication

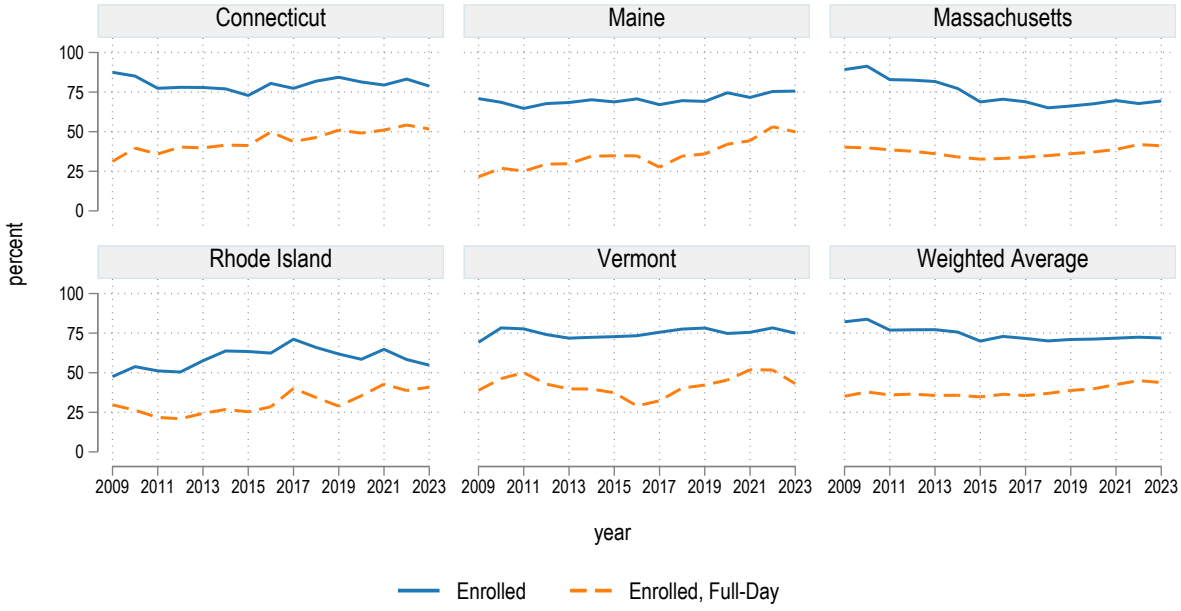
A Additional Figures and Tables

Figure A.1. Enrollment of 3 year-olds



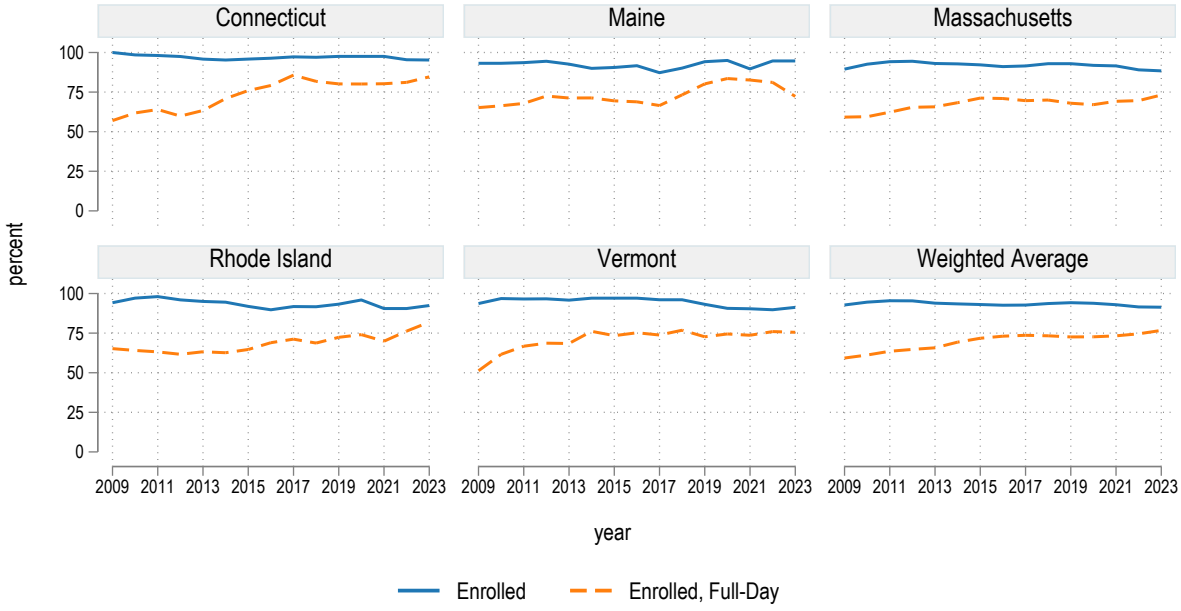
Notes: Authors' calculations using data from the October supplement of the Current Population Survey. 5-year rolling averages.

Figure A.2. Enrollment of 4 year-olds



Notes: Authors' calculations using data from the October supplement of the Current Population Survey. 5-year rolling averages.

Figure A.3. Enrollment of 5 year-olds



Notes: Authors' calculations using data from the October supplement of the Current Population Survey. 5-year rolling averages.

Table A.1. Summary Statistics of Select Variables

	ACS		CPS, ASEC		PSID	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Supply	0.57	0.23	0.60	0.16	0.56	0.19
Home	0.14	0.09	0.14	0.07	0.14	0.07
Center	0.43	0.20	0.46	0.11	0.42	0.17
Cost	2136	563	2023	489	2280	633
LF	74.5	29.2	72.6	44.6	81.9	38.5
Employment	69.8	30.9	69.2	46.2	78.6	41.1
Full Time			42.3	49.4		
N	127,577		7158		1573	

Source: Authors' calculations.

Table A.2. CPS Labor Market Outcomes: The Impact of Childcare Supply and Costs. ACS Age Restriction

	Women with Children < 5			Men with Children < 5		
	In Labor Force	Employed	Full Time	In Labor Force	Employed	Full Time
	Panel A: Total Supply and Cost					
Supply	3.22**	3.61**	4.64***	–0.23	0.44	1.42
	(1.44)	(1.48)	(1.57)	(0.78)	(1.03)	(1.37)
Cost	–2.94**	–3.22**	–3.44**	–0.21	0.16	0.91
	(1.38)	(1.41)	(1.46)	(0.67)	(0.92)	(1.27)
	Panel B: Supply Types and Cost					
Supply, Home	4.41***	4.62***	2.33	–0.12	0.56	0.18
	(1.31)	(1.33)	(1.44)	(0.76)	(0.96)	(1.29)
Supply, Center	1.23	1.50	3.28***	–0.15	0.20	1.19
	(1.12)	(1.14)	(1.23)	(0.60)	(0.79)	(1.07)
Cost	–0.94	–1.20	–3.33**	–0.22	0.40	0.57
	(1.56)	(1.59)	(1.69)	(0.81)	(1.09)	(1.48)
Avg. LHS	72.0	68.1	41.1	94.5	89.5	77.3
Obs	7811	7811	7811	6578	6578	6578
R sq.	0.079	0.098	0.071	0.139	0.148	0.102
Errors	cluster	cluster	cluster	cluster	cluster	cluster
FE	st yr	st yr	st yr	st yr	st yr	st yr

Notes: The LHS are dummies for labor force participation, employment, or full-time employment multiplied by 100. Regressions restricted to individuals aged 20 to 64 years old in the group indicated in the column headings. Supply and cost measures correspond to the baseline **b2/t20** combination and are standardized for easier comparison of the coefficients. Additional controls: age, education, race, citizenship status, presence of partner, health, disability, and school/college enrollment. Year and state FE included in all regressions. Unweighted regressions. Standard Errors, in parentheses, are clustered at the individual level. Sample period: 2010 to 2023. States included: Connecticut, Maine, Massachusetts, Rhode Island, and Vermont.

Table A.3. CPS Labor Market Outcomes: The Impact of Childcare Supply and Costs. Weighted Regressions

	Women with Children < 5			Men with Children < 5		
	In Labor Force	Employed	Full Time	In Labor Force	Employed	Full Time
	Panel A: Total Supply and Cost					
Supply	2.64*	2.26	3.52**	–0.43	0.46	0.89
	(1.36)	(1.43)	(1.57)	(0.65)	(0.91)	(1.32)
Cost	–2.80*	–1.77	–2.20	–0.23	0.26	–0.20
	(1.63)	(1.73)	(1.88)	(0.88)	(1.24)	(1.73)
	Panel B: Supply Types and Cost					
Supply, Home	2.61*	2.75**	1.79	–0.98	–0.43	–0.89
	(1.37)	(1.38)	(1.23)	(0.75)	(1.06)	(1.29)
Supply, Center	1.55	1.10	2.84**	–0.02	0.66	1.29
	(1.15)	(1.19)	(1.43)	(0.60)	(0.82)	(1.19)
Cost	–1.52	–0.21	–2.05	–0.95	–0.33	–1.39
	(1.80)	(1.83)	(2.10)	(1.05)	(1.48)	(1.94)
Avg. LHS	72.5	69.1	42.8	95.2	91.0	79.0
Obs	7158	7158	7158	6281	6281	6281
R sq.	0.097	0.120	0.092	0.135	0.138	0.107
Errors	sdr	sdr	sdr	sdr	sdr	sdr

Notes: The LHS are dummies for labor force participation, employment, or full-time employment multiplied by 100. Regressions restricted to individuals aged 25 to 54 years old in the group indicated in the column headings. Supply and cost measures correspond to the baseline **b2/t20** combination and are standardized for easier comparison of the coefficients. Additional controls: age, education, race, citizenship status, presence of partner, health, disability, and school/college enrollment. Year and state FE included in all regressions. Weighted regressions using ASEC CPS weights. Standard Errors calculated using successive difference replication using replication weights. Sample period: 2010 to 2023. States included: Connecticut, Maine, Massachusetts, Rhode Island, and Vermont.

Table A.4. Summary Statistics of Childcare Measures
CPS Sample of Women with Children Under 5

	mean	sd	min	max
Total Supply	0.60	0.16	0.35	1.01
Supply, Home	0.14	0.07	0.02	0.33
Supply, Center	0.46	0.11	0.24	0.90
Cost, dollars	2023.30	488.96	1331.42	4001.47
Observations	7158			

Table A.5. Correlation Matrix of Childcare Measures
CPS Sample of Women with Children Under 5

	Total Supply	Supply, Home	Supply, Center	Cost
Total Supply	1.00	0.75	0.91	–0.03
Supply, Home	0.75	1.00	0.40	–0.31
Supply, Center	0.91	0.40	1.00	0.15
Cost	–0.03	–0.31	0.15	1.00

Table A.6. Summary Statistics of Childcare Measures
PSID Sample

	mean	sd	min	max
Total Supply	0.56	0.19	0.00	2.01
Supply, Home	0.14	0.07	0.00	0.42
Supply, Center	0.42	0.17	0.00	1.84
Cost	2279.87	632.74	326.23	4410.61
N	1573			

Table A.7. Correlation Matrix of Childcare Measures
PSID Sample

	Total Supply	Supply, Home	Supply, Center	Cost
Total Supply	1.00	0.42	0.93	–0.01
Supply, Home	0.42	1.00	0.05	–0.41
Supply, Center	0.93	0.05	1.00	0.17
Cost	–0.01	–0.41	0.17	1.00