Afterschool Care Subsidies and Maternal Employment

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Abstract

Afterschool care addresses the gap between the school day and the full-time work day. I study how afterschool care affects maternal employment using the staggered rollout of 21st Century Community Learning Center grants. I collect a novel dataset on these grants, and build a precise geographic linkage with individuals in restricted-access Census Bureau data. I find that while overall maternal employment does not change, Black and other minority non-Hispanic mothers are 6.2 percentage points more likely to work full time when their nearest elementary school receives a grant. At the same time, women living near these schools are 0.67 percentage points less likely to report working in a care occupation. Among mothers, the decline in care occupation is driven by Hispanic mothers (-1.03 pp). Because mothers both use and provide childcare, understanding its effect on maternal employment requires measuring effects on both.

*Department of Economics, University of Nebraska-Lincoln. bjack2@huskers.unl.edu. I would like to thank Ashley Erceg, Claudia Goldin, Yifan Gong, Claudia Olivetti, Emily Oster, Michael Ricks, Daniel Tannenbaum, Brenden Timpe, Yuxi Yao, and participants at the KS-MO-NE Annual Conference for helpful comments. Grace Hecke provided excellent research assistance. This research was supported by the Gates Foundation Pre-doctoral Fellowship on Gender in the Economy, awarded through the NBER, a dissertation research grant supported by the Russell Sage Foundation and Washington Center for Equitable Growth, and a graduate fellowship awarded by the Buffett Early Childhood Institute. Any views expressed are those of the author and not those of the U.S. Census Bureau. The Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product. This research was performed at a Federal Statistical Research Data Center under FSRDC Project Number 2593. (CBDRB-FY26-P2593-R13357)

1 Introduction

Mothers work less than fathers, and this gap persists even once children enter school. Many childcare and school policies aim to increase maternal employment, yet effects on maternal employment can be surprisingly muted, especially for school-based care (Fitzpatrick, 2010; Wikle and Wilson, 2023). The school day in the United States, though, lasts an average of 6.7 hours,[1] at least an hour shorter than a full workday, so full-time work requires dependable care that covers the rest of the day. Mothers often fill this gap, both for their own children and for others: approximately 35 percent of non-institutional afterschool providers are mothers (Section 2). Because mothers are on both sides of the market, a childcare subsidy that helps mothers who use care can crowd out mothers who provide it, creating gains for some mothers and losses for others. In this paper, I use a novel dataset on federally funded afterschool programs linked with restricted-access Census Bureau data to study both of these features of childcare policy. I find that afterschool care allows some mothers to take up full-time work, while women who provide care, disproportionately Hispanic women, leave care work.

The persistent earnings gaps around parenthood (Kleven et al., 2019) mirror another well-known parental gap: mothers spend more time caring for their children than fathers do (Cortés and Pan, 2023; Anstreicher and Jack, 2026). These differences in time use suggest that childcare support covering even the few hours a day after school is likely to have the biggest effects on mothers compared to fathers, potentially opening up the full-time work margin for more mothers. Full-time work is an important margin for earnings because compensation structures often reward long hours of work with disproportionately high returns (Goldin, 2014). Despite decades of targeted federal funding for afterschool care programs that extend care to the length of a full workday, there have been no systematic analyses of their impact on maternal employment.

I begin by documenting the state of afterschool care in the United States. Many families rely on afterschool care, and fill the afterschool gap using non-institutional care, such as nannying or babysitting. Using survey data from the National Survey of Early Care and Education (NSECE), I show that 52.7 percent of school-age children use non-parental afterschool care, and approximately 54 percent of these children use non-institutional care (equivalent to 28.3 percent of all school-age children). On the supply side, 35 percent of non-institutional afterschool care providers are also mothers, 16.0 percent of whom are paid. These facts predict that effects will differ across mothers. Black and other minority non-Hispanic mothers, who have the highest employment rates, should be the most likely to

[1] Averages reported for 2007-2008 school year, from National Center for Education Statistics Schools and Staffing Survey, accessed at `https://nces.ed.gov/surveys/sass/tables/sass0708_035_s1s.asp`.

work more. Hispanic women should be the most likely to lose care work, given that Hispanic mothers are overrepresented among paid non-institutional providers. Appendix A formalizes these predictions in a stylized model.

In order to analyze effects of an afterschool care subsidy on mothers who both utilize and provide childcare, I build a novel dataset on the only comprehensive federal funding targeted towards afterschool care: the 21st Century Community Learning Center (CCLC) grants.[2] Funds from this program are awarded competitively to schools that serve low-income populations to provide academic support for students during the afterschool hours. I collected CCLC program site data for three states, Colorado, Oklahoma, and Texas, from 2003 through 2016. I link these data with yearly school directory data from the National Center for Education Statistics (NCES), which together provide precise geographic and school-level information about when and where institutional afterschool care programs became available over time. I geo-match this dataset to individuals in two restricted-access datasets, the Longitudinal Employer-Household Dynamics (LEHD) administrative data and the American Community Survey (ACS) data, which both provide precise home geographic locations for individuals. By linking parents of school-age children to their closest elementary school, I am able to utilize school-level variation over time to measure effects of these subsidies throughout the community, including mothers and non-institutional care providers.

First, I measure the efficacy of the grants in creating new programs by estimating the impact of each new grant on local, county-level employment. I find that each grant increases employment in the school industry by nearly 5 employees, or approximately 25 percent of the staff necessary to run a new program. Employment in the childcare industry does not change significantly (-0.07 employees), consistent with displacement occurring among informal providers who are missing from administrative records.

Next, to measure the impact of afterschool care availability on parental employment, I estimate a two-way fixed effects model using my CCLC-ACS linked data. Survey responses in the ACS allow me to see important intensive margin measures such as hours worked, as well as capture parents who may be informally employed in childcare occupations who would not have reported earnings in other administrative datasets. I generate intent-to-treat estimates among parents who have a child between the ages of 5 and 10. Treated parents are those whose closest elementary school received a grant, and control parents are those whose closest elementary school did not receive a grant. While I find minimal impacts on the extensive margin, I find important and distinct impacts along the intensive margin. Black

[2]Texas, for example, cites the 21st CCLC program as the "largest dedicated funding source for [afterschool] programs in Texas", see `https://tea.texas.gov/texas-schools/support-for-at-risk-schools-and-students/after-school-programs`.

and other minority non-Hispanic mothers, a group with high rates of employment, increase their time spent at work by 4.7 percent, with an increase of 6.2 percentage points in the likelihood of working full time.

I then measure the impacts on care occupations directly. I define care occupations as "childcare workers" and "personal care aides," the two most common non-education occupations among mothers who care for non-household children after school in the ATUS. By establishing new, free afterschool programs, CCLC grants increase competition in the care market, and I find effects consistent with crowding out of non-institutional childcare providers. After a grant, the share of women reporting a care occupation falls by 0.67 percentage points (SE 0.32), with similar declines among mothers and women without children. Among mothers, the decline is 20 percent of the baseline rate. The decline is concentrated among Hispanic women (1.08 percentage points, SE 0.46). Mothers who report a care occupation are 12.2 percentage points less likely to be employed. Under the assumption that those who leave care occupations were at least as likely to be employed as those who stay, I find a bounded decline of at least 4.8 percentage points when accounting for selection.

Taken together, the results suggest that while increased access to childcare allows some mothers to work more, the effects are not uniform across mothers. I find positive effects of childcare on the intensive margin for Black and other minority non-Hispanic mothers. The increase in full-time employment among these mothers reduces the gap in full-time employment with Black and other minority non-Hispanic fathers by approximately 25 percent. On the other hand, fewer women, and especially Hispanic mothers, report working in care occupations after a grant, and mothers who report being in care occupations see a decrease in their likelihood of being employed. Because mothers are on both sides of the childcare market, subsidies can impose costs on providers that standard evaluations of maternal employment miss.

This paper makes three main contributions. First, I show that afterschool care affects maternal employment on the full-time margin. Research on childcare subsidies often focuses on children under the age of five (Herbst, 2017; Gibbs et al., 2024; Humphries et al., 2024), but the earnings gap between mothers and fathers persists beyond the age of five (Cortés and Pan, 2023). Effects in this literature are often muted, especially for school-based care (Fitzpatrick, 2010; Wikle and Wilson, 2023). School alone does not cover a full-time workday, and maternal employment responds to the length of the school day and school calendar (Padilla-Romo and Cabrera-Hernández, 2019; Berthelon et al., 2023; Price and Wasserman, 2024). Afterschool care fills that gap, and its effects appear in full-time work rather than in whether mothers work at all. Research on afterschool care within the United States has focused largely on child outcomes (Aizer, 2004). Consistent with this paper, Felfe et al.

(2016) find similar effects of afterschool care on the full-time margin outside the United States.[3] Second, I show that maternal employment can also be impacted on the supply side, because mothers often provide childcare themselves. Havnes and Mogstad (2011) find little net employment effect of universal childcare in Norway and conclude that it displaced informal care, and Chari and Valli (2021) show that informal caregivers' time use responds to public kindergarten access, but neither observes the employment of the providers themselves. Because I estimate intent-to-treat effects for everyone in a community, I can measure effects on the women who provide care, and I find that care work declines, concentrated among Hispanic women. Because many of these providers work informally, evaluations relying on administrative data would miss these costs. Third, my novel data collection and precise geographic linkages allow me to utilize school-level variation in grant access across multiple states and multiple years. In contrast, national school catchment zone data are available for only a few years (Saporito et al., 2013), making it difficult to link families to their own school over time.

The rest of the paper proceeds as follows. Section 2 presents descriptive survey evidence on the afterschool market in the United States. Section 3 discusses the novel data collection and linkages. Section 4 presents effects of the 21st CCLC grants on local employment levels. Section 5 discusses the empirical strategy for employment outcomes. Section 6 presents effects on maternal employment along the intensive and extensive margins. Section 7 discusses crowd out among care occupations. Finally, Section 8 concludes.

2 Afterschool care in the United States

As maternal labor force participation rates have risen, so has the importance of the gap in hours between the school day and the workday. Accordingly, the afterschool care market in the United States is very large. Survey evidence from the National Survey of Early Care and Education (NSECE) pooled across two available years, 2012 and 2019, and reported in Table 1, shows that 52.7 percent of school-age children rely on some form of non-parental care. More than half of these children, or 28.3 percent of all children, are cared for by non-institutional providers, including nannies, babysitters, and neighbors. In comparison, 16.6 percent of children are cared for in institutional settings including center-based care.

The care provider side of the market is also large, with approximately 2.7 million non-institutional, school-age care providers in a given year, 21.6 percent of whom are paid (see

[3]Other studies of afterschool care and maternal employment evaluate specific programs (Martínez A. and Perticará, 2017) or study settings where mothers are likely to have already established hours of work (Dehos and Paul, 2023).

Table 2). I use non-institutional school-age providers who also enroll a child from their own household as a proxy for mothers caring for non-household children alongside their own. These mother-proxies make up approximately 35 percent of non-institutional care providers in the United States. Hispanic mothers are overrepresented in paid, non-institutional care: Hispanic providers make up 16.5 percent of all non-institutional care providers, but among paid mother-proxy providers, Hispanic mothers make up 30.7 percent.

Importantly, mothers participate on both sides of the afterschool care market. Many mothers depend on afterschool childcare for their children, while other mothers provide this childcare themselves. A subsidy can therefore affect maternal employment through multiple channels. CCLC funding creates afterschool programs at school locations that provide reliable, easily accessible care for children. While this relatively small increase in childcare coverage is unlikely to impact overall maternal employment, mothers employed outside the care sector may be able to work more hours, an adjustment on the intensive margin. This effect should be especially pronounced for groups with high baseline employment rates, such as Black and other minority non-Hispanic mothers (see Appendix Table A1 for population-level rates). In contrast, mothers who provide paid, non-institutional care face new competition from a free, institutional alternative and are likely to either move away from care occupations or leave employment. Since many of these mothers care for their own children alongside other children, switching occupations is difficult, and some may leave employment in response. Hispanic mothers are overrepresented among paid, non-institutional caregivers (see Table 2), so these negative effects are likely to be largest for them.

3 Data

3.1 Novel 21st Century Community Learning Center data

Federal policy specifically targeting afterschool hours remained limited until the creation of the 21st Century Community Learning Centers Grant program (CCLC) in the 1994 *Improving America's Schools Act*. In 2001, *No Child Left Behind* overhauled the program, substantially narrowing its focus to improving academic achievement through afterschool programming at low-income schools and shifting the program to state-administered grants. Federal funding for CCLC also rose to $1 billion, which is allocated to states in proportion to their share of federal Title I funding (see Appendix Figure A1).[4] States then award

[4]Title I of the *Elementary and Secondary Education Act* provides federal funding to school districts and schools serving high concentrations of students from low-income families. Schools with high poverty rates,

competitive grants to school districts and community organizations, which operate CCLC programs at specific school sites.

Despite multiple decades of program grants, no systematic data are available for the site locations of these programs. I address this lack of data by creating a novel dataset of 21st Century Community Learning Center programs for three states: Colorado, Oklahoma, and Texas. These three states were the only states with systematic historical school and district site names available either on current websites or archived state websites, which I scraped and cleaned to create the initial dataset. Many of the site locations were available through historical reports on the CCLC grants, including the Oklahoma program summaries described below. A detailed overview of the data collection process is in Appendix C.

I then linked these data with yearly school-level directory and enrollment data from the National Center for Education Statistics (NCES). The final dataset is a school-year level dataset containing information on CCLC grant receipt, school-level characteristics such as enrollment, free-and-reduced-price lunch shares, and demographic shares. The NCES-linkage also provides detailed location data, which is key for my high-precision linkage with two restricted-access datasets I describe next. I include a summary of the data in Table 3.

3.2 Longitudinal Employer-Household Dynamics

First, I link the CCLC data to firm-year-level information from the Longitudinal Employer-Household Dynamics (LEHD) administrative data in order to study the impact of these grants on local employment as a measure of the effectiveness of the grants. The LEHD contains information on the universe of firms by state including employee counts by year, industry, and precise location data. I utilize the LEHD for Colorado, Oklahoma, and Texas, each of the states available in the CCLC data. I aggregated the firm-level data to the county-year level for two industries, the elementary and secondary schools industry and the child day care services industry, the two relevant industries to the creation of afterschool care programs [5]. The final dataset is a county-year-industry level dataset with the count of CCLC grants first implemented in each county-year.

commonly measured by the share of students eligible for free or reduced-price lunch, receive Title I funds to support low-income students.

[5]North American Industry Classification System (NAICS) codes: elementary and secondary schools, 611110; and child day care services, 624410.

3.3 American Community Survey

For individual employment outcomes, I utilize the American Community Survey (ACS) from 2001–2017. This is a large-scale, cross-sectional survey of the entire United States. I focus specifically on responses in my three states. The ACS is a survey of households, and therefore allows me to identify parents with children who reside in their household, and the ages of their children. This restricts my analysis to parents who live with their children, and therefore to the group of parents that would likely be most responsive to an increase of childcare. Additionally, I rely on survey data because it reports employment information including occupation and hours worked *regardless* of formal or informal employment status. Many mothers who work in non-institutional childcare positions do so informally. Therefore, many of these mothers will not be included in administrative data such as the LEHD. Mothers who work informally are more likely to be included in the ACS due to the series of employment questions. The ACS asks questions intending to count all forms of employment, even when someone is employed for as little as 1 hour in the reference week. In fact, questionnaire instructions specifically state that "Any part-time work including babysitting, paper routes, etc." should be reported as employed.[6]

The restricted-use version of the ACS also contains exact geographic location for households which is vital for my linkage to school locations and CCLC grant availability. Because I have exact geographic location in both the CCLC dataset and the ACS dataset, I link individuals to their closest elementary school, creating a setting with school-level variation in grant status across multiple states. Because data on school catchment zones are not systematically available over time, most related literature utilizes school-district or county-level variation. By using distance as the best proxy for school-catchment zones, this novel geographic linkage provides a much finer level of variation at a larger scale than is typically available.

For my main analysis, I focus on the sample of parents who have a child between the ages of five and ten who live within a ten-kilometer radius of an elementary school that has a share of at least 60 percent free-and-reduced-price-lunch (FRPL) students. The distance restriction helps approximate school catchment zones and the FRPL restriction is due to the fact that grant-receiving schools have disproportionately high rates of FRPL.

3.3.1 Measurement of care occupations

Measurement of non-institutional childcare is a challenge because it shares occupation and industry codes with institutional childcare. I address this challenge in two ways. First,

[6]Questionnaire information accessed through IPUMS `https://usa.ipums.org/usa-action/variables/EMPSTAT#us2011a`.

my survey evidence in Section 2 shows that Hispanic mothers are overrepresented in non-institutional, afterschool childcare positions, and so effects along the provider channel should be larger for Hispanic mothers. Because of this, I present heterogeneity by race and ethnicity groupings to separate effects for Hispanic mothers and non-Hispanic mothers.

Second, I build an indicator for working in a care occupation. To do this, I rely on public time diary data from the American Time Use Survey (ATUS). Using ATUS, I first identify mothers who care for non-household children during the afterschool hours (2 to 6 PM on weekdays), including primary care, secondary care, and transportation. Many of these mothers work as teachers and other education-related occupations, whose school-based employment is not likely to be displaced by afterschool grants, so I do not include these occupations in my measure. The top two non-education occupations of mothers who care for non-household children after school are childcare workers (occupation code 4600, 14.6 percent of mothers who provide afterschool care) and personal care aides (occupation code 4610, 13.6 percent), which together create the care occupation indicator.[7]

4 Do grants create new afterschool care slots?

4.1 Oklahoma program summaries

While funding has risen, it is not initially clear whether these grants lead to the creation of new afterschool care programs. The legislation for the CCLC program requires grants to be used to "supplement, not supplant" existing funds for afterschool care (U.S. Department of Education, 2023), indicating that these grants should lead to either the establishment of new programs or expansions of existing programs. In addition, federal guidance states that these programs should be free, as the grants specifically target low-income populations [8].

As a first piece of evidence on the effectiveness of these grants in fulfilling their stated purpose, I present data on detailed program summaries from Oklahoma for 2005-2009 that I collected alongside my main data as explained in Section 3.1. Additional information on this data collection is detailed in Appendix C.

[7]Both of these occupations include individuals who do not do afterschool care work. Childcare workers include individuals in both institutional and non-institutional care settings, many of whom work with young infants and children under the age of five, who are too young to be enrolled in afterschool programs. Personal care aides include those who work with people with disabilities (including children) and the elderly. These individuals who do not provide afterschool care are not likely to be impacted by the grants so the inclusion of these individuals in my care occupation indicator likely attenuates my results.

[8]Federal guidance states: *In light of the requirement in section 4204(b)(2)(F) of the ESEA that a 21st CCLC program target students who primarily attend schools eligible to operate a schoolwide program—i.e., schools with a poverty rate of at least 40 percent—it is generally unreasonable for a 21st CCLC subgrantee to charge a fee for students to participate in a 21st CCLC program in order to generate program income.*

Beyond school and district names, the Oklahoma program summaries contain information on the number of students enrolled in the program for each year, as well as information on staffing and demographics. Table 4 presents data pulled from program summaries. These programs serve a large share of students: within grantee-elementary-schools, 46.7 percent of students participate in the CCLC program and demographics of program-enrolled students track overall school demographics pretty closely. One notable exception is the share of students who participate in the free-and-reduced-price lunch (FRPL) program. Overall school rates reflect the targeted nature of the grants; these schools serve student populations with around 77 percent FRPL. The CCLC programs report a slightly lower rate of 72 percent FRPL, indicating that while the programs are effectively implemented in low-income schools, within the school the CCLC program skews slightly less low-income, potentially serving the relatively more advantaged students within the school.

These programs are heavily utilized once created, especially at the elementary school level, representing the age-range that is the focus of the analysis in this paper. For further evidence on the effectiveness of these grants on program creation, I present evidence on industry-level employment in section 4.2.

4.2 Impact of CCLC grants on school and childcare employment

To begin the empirical analysis, I first analyze whether the provision of CCLC grants increases access to afterschool care. While I do not have student-level enrollment data in the program, if the grants successfully create new programs or new slots within programs, then there should be an increase in local employment from the creation of new staff positions for these programs. Therefore, I estimate the impact of the grants on local, county-level employment for both the childcare and elementary school industries using my LEHD linkage described above. I aggregate employment to the county-level because staff may be hired by the school district as the firm in the LEHD, so the location of the hiring firm may not match the school location of the implemented program.

I estimate the following specification separately for NAICS 611110 (elementary and secondary schools) and NAICS 624410 (child day care services):

$$y_{ct} = \beta \text{total_grant}_{ct} + \alpha_c + \tau_t + \epsilon_{ct} \tag{1}$$

where y_{ct} is log county-level industry employment, total_grant_{ct} is the count of new grants awarded in county c in year t, α_c are county fixed effects, and τ_t are year fixed effects. Converting the log outcomes to employee counts, every additional new grant significantly increases local school industry employment by 4.7 employees, while the effect on childcare

industry employment is small and insignificant (-0.07 employees; 95% CI:$[-0.18, 0.04]$). This null finding for the childcare industry is consistent with disruption to the care occupations being concentrated among informal providers who are missing from unemployment insurance records.

In order to benchmark the estimate for the school industry, consider the following: Assume a new afterschool program serves approximately 185 students with approximately 19 employees to staff the program, taken from the Oklahoma program summaries. The findings suggest that a grant leads to hiring around 25 percent of the overall staffing needs, reflecting the fact that some afterschool staff may be existing teachers or other staff. CCLC grants then lead to increases in employment, indicating the effectiveness of these grants in expanding available institutional afterschool care in the community.

5 Empirical strategy for employment outcomes

Next, I turn to the CCLC-ACS sample in order to study the impacts of afterschool care availability on the surrounding community of parents across Colorado, Oklahoma, and Texas. I estimate a standard two-way fixed effects model, relying on both the staggered timing of grant awards and spatial variation of grantees, to determine the intent-to-treat effects of afterschool availability on the treated community of parents. Treated parents are those residing closest to an elementary school that receives a 21st CCLC grant in a given year, assigned using the geospatial match of household location to the nearest 21st CCLC-eligible school, and control parents are those whose closest elementary school does not receive a grant. Specifically, I estimate the following equation:

$$y_{ijt} = \sum_{\substack{k=-4 \\ k\neq -1}}^{8} \beta_k \, \text{grant}_j \times D_t^k + \beta_{\leq -5} \, \text{grant}_j \times D_t^{\leq -5} + \beta_{\geq 9} \, \text{grant}_j \times D_t^{\geq 9} + X_{ijt}\gamma + \delta_j + \varphi_{s(j)t} + \epsilon_{ijt} \quad (2)$$

where the outcome y_{ijt} is individual employment, and the coefficients of interest are each β_k, the effect of living closest to a grant-receiving elementary school, measured at relative year k. grant_j equals one if school j ever receives a grant, and D_t^k equals one if year t is k years after school j's first grant. The year before the grant ($k = -1$) is omitted. $D_t^{\leq -5}$ and $D_t^{\geq 9}$ bin all years five or more before and nine or more after the grant, so that β_{-4} through β_8 are not confounded by observations outside the event window. The comparison group is parents whose nearest school has not yet received or never receives a grant. X_{ijt} are individual demographics including the presence of young children under the age of 5 in the

household, the presence of older children in the household, an indicator for having graduated high school, and race. $\varphi_{s(j)t}$ are state-by-year fixed effects and δ_j are school fixed effects. Standard errors are clustered at the school level.

I also estimate the following difference-in-differences equation, focusing on the year of the grant and the five years after it, because grants are awarded for five years. β_1 captures the effect over this period, and β_2 captures the effect six or more years after the grant, after funding ends. $D_t^{\leq -5}$ bins all years five or more before the grant, so the reference period is the four years before the grant. Standard errors are again clustered at the school level. I estimate effects on an indicator for working full time, log hours worked, and an indicator for reporting a care occupation.

$$y_{ijt} = \beta_1 \text{grant}_j \times D_t^{\text{0-5}} + \beta_2 \text{grant}_j \times D_t^{6+} + \beta_0 \text{grant}_j \times D_t^{\leq -5} + X_{ijt}\gamma + \delta_j + \varphi_{s(j)t} + \epsilon_{ijt} \quad (3)$$

Both sets of analyses rely on the assumptions that absent the afterschool grant, employment outcomes for parents in the treated and control groups would have moved in parallel and that there are no other confounding shocks. The event studies in Figure 1 show no pre-trends in employment, suggesting that local labor market conditions trend similarly across treatment and control schools. Institutional details of the CCLC program also support these assumptions. The overarching goal of CCLC programs is to support students academically by providing them additional resources outside of school hours. Federal guidance on the competition for grants emphasizes that proposals must include "how the proposed activities are expected to improve student academic achievement as well as overall student success." Guidelines do not ask for information or decisions based on local labor market conditions or trends, outside of the requirement for funds to be used at low-income schools (U.S. Department of Education, 2023), which I address through using similarly low-income schools for the control group. Schools may apply due to knowledge of local need, but because the grants are highly competitive and nearly two-thirds of proposals are not funded, and because my data contains the universe of low-income schools, schools that apply but do not receive grants are included in the comparison group.[9] In addition, timing of grant awards follows state-level grant cycles. While the local decision to apply may be dependent on local resources, the inclusion of school fixed effects absorbs those level differences.

[9]The grants are competitive and decided by the State Education Agency: between 2002 and 2010, 36 percent of applicants were awarded grants and 35 percent of the requested funds were granted (O'Donnell and Ford, 2013).

6 Maternal employment responses to afterschool care

Afterschool care programs add only a few hours of childcare a day, so these programs are effectively a small extension to the existing hours of supervision provided by schools. It is unlikely that this small number of hours would have impacts on overall maternal employment. I examine this directly by estimating equation (2), with an indicator for being employed as the outcome. The event study coefficients in Figure 1 confirm that there are no significant employment effects for mothers in response to these grants.

In contrast, effects along the intensive margin are likely. Afterschool programs are a unique source of childcare variation specifically because they extend existing care to cover the full workday and mothers employed outside of the care sector may be able to take on more hours at work in response. I study whether this care extension opens up the full-time margin for mothers, and report estimates from Equation 3 with an indicator for full-time work as the main outcome. I estimate the equation for the entire sample and separately for white non-Hispanic mothers; Black and other minority non-Hispanic mothers; and Hispanic mothers in Figure 2.

While overall effects are negligible, there is substantial heterogeneity by racial and ethnic groups, driven by effects for Black and other minority non-Hispanic mothers, the subgroup with the highest population-level employment rates (see Table A1). Black and other minority non-Hispanic mothers are 6.2 percentage points (SE: 2.5) more likely to work full time. White non-Hispanic mothers show an insignificant effect of 1.9 percentage points (SE: 1.9), while Hispanic mothers show an insignificant negative effect (-1.64, SE: 1.66). A Wald test rejects equal effects across these three subgroups of mothers ($\chi^2(2) = 6.96$, p= 0.03).[10] Fathers, who show no significant effects, are much more likely to work full time than mothers overall. The full-time work margin represents an important gap in types of employment among mothers and fathers. Using the population-level rates among Black and other minority non-Hispanic mothers and fathers, the full-time gap is 25.1 percentage points. Afterschool care availability closes this gap by 24.7%.

Figure 3 shows a similar pattern using a continuous measure of log hours worked. Black and other minority non-Hispanic mothers experience the largest effects, with a 4.7 percent increase in hours worked. Hispanic mothers, in contrast, show insignificant but negative effects. I include effects for additional hours-worked thresholds in Appendix Figures A3 and A4.

These intensive margin effects do not reflect overall patterns in the local labor market.

[10]Wald test performed under the assumption of independence between subgroups using currently disclosed estimates. I plan to include a full test of equality in the next disclosure.

I present placebo effects in Appendix Figure A5 for women and men who live within the same ten kilometer distance from elementary schools, but do not have children, and therefore are unlikely to be impacted by afterschool care availability. Point estimates for individuals without children are close to zero, although confidence intervals are wide.

7 Care occupations and crowd out

Subsidies also have the potential to crowd out existing suppliers. CCLC grants create free institutional afterschool programs, generating new competition for existing childcare providers. Because non-institutional care typically has a very low child-to-provider ratio (see Table 2), fewer care providers will be needed to cover the same amount of care due to economies of scale within institutional programs. These two factors together suggest that crowd out among non-institutional providers is possible when a CCLC program is introduced. Following the predictions explained in Section 2, if grants crowd-out non-institutional providers, the share of women in care occupations should fall, with declines largest for Hispanic women given that Hispanic mothers are overrepresented among paid, non-institutional providers.

7.1 Does care work decline?

Due to the intent-to-treat design, I can explore this possibility directly. In Figure 4 I show estimates from Equation 3 for the likelihood of being in a care occupation for both mothers and other women in the community[11].

Overall, the results follow similar patterns for mothers of school age children and women who do not have children, although the estimates for women without children are noisier. Both mothers and women without children see decreases in likelihood of working in a care occupation after a CCLC grant: 0.6 percentage points for mothers (SE 0.39) and 0.8 percentage points for women without children (SE 0.55). Neither estimate is significant on its own, but they are similar in size, and the combined estimate is a 0.67 percentage point decline (SE 0.32).[12] This negative impact is driven by Hispanic mothers, who are significantly less likely to report being in a care occupation by 1.03 percentage points (SE 0.51). Hispanic women without children follow a similar pattern, and the combined estimate is a decline of 1.08 percentage points (SE 0.46).

[11]See discussion in Section 3.3.1 for definition of care occupations

[12]Estimates were disclosed separately and are combined using inverse-variance weighting. I plan to include an overall combined estimate in the next disclosure.

The decline in care occupations is in contrast to the finding in Section 4.2, where employment in the childcare industry showed no significant effect. This contrast is consistent with the disruption to the childcare market being borne by women who provide care informally and therefore do not appear in unemployment insurance records. Because the decline appears only in the ACS, which is more likely to capture informal work, relying on survey data is important for understanding the supply side impacts of childcare subsidies.

7.2 Do measured effects match expected magnitudes?

Next, I benchmark the estimated effects to expected effect sizes. Assume each CCLC program enrolls 200 students (rounded from Table 4). Survey data from Table 1 estimates 8.5 percent of school-age children rely on paid non-institutional care. If these students switch to the CCLC program proportionately, which is likely an underestimate, then 17 students leave paid non-institutional care. Table 2 estimates approximately 1.63 children per paid provider, so approximately 10 paid providers are impacted, 26 percent of whom are mothers themselves.

Therefore, the expected effect is around 2.6 mothers experiencing disruption due to the grants, with approximately 30 percent of these mothers being Hispanic. If there are 300–400 mothers per grantee school[13], then using the overall estimate of a 0.6 percentage point decline in the share of mothers in care occupations, approximately 1.8–2.4 mothers are impacted. Using the 1.03 percentage point decline among Hispanic mothers, who make up 48.7 percent of sample mothers, approximately 1.5–2.0 Hispanic mothers are impacted, compared with the expected 0.8. Along a range of assumptions, the measured effects are similar in magnitude to the expected effects, so crowd-out is a plausible explanation for the measured declines within care occupations.

7.3 What happens to mothers who provide care?

Who bears the loss due to disruption to the care market? While the share of mothers reporting a care occupation falls by about 20 percent, mothers who remain in care occupations may also experience disruption. Therefore, I also estimate the impact on likelihood of being employed for mothers who report being in a care occupation. Estimated effects are shown in Figure 5. Mothers who report a care occupation are 12.2 percentage points less likely to be employed after the introduction of the grant. Among those who remain employed, the point estimate for wages is negative but imprecise.

[13]There are an average of 399.2 students per school in Oklahoma (Table 4); some mothers may have multiple children enrolled at the same school.

The ACS reports occupations for both employed and non-employed individuals. For non-employed individuals, occupation is reported as their occupation for when they were last employed. Therefore, the employment effect among mothers within care occupations captures both selection and the true causal effect of the grants, due to the changes in likelihood of reporting being in a care occupation as shown in Figure 4. Fixing the baseline maternal employment rate in care occupations to the overall rate of employment in care occupations, 68.5 percent (see Appendix Table A1), assume all mothers who leave care occupations were employed at their time of leaving. Even at this extreme, the selection effect would account for 7.4 percentage points of the estimate, leaving -4.8 percentage points as the causal effect of the childcare subsidy on employment within care occupations. I assume equal or higher rates of employment for leavers compared to stayers, because ACS records most recent occupation for individuals who are not employed. Therefore, the true estimate is bounded by [−12.2pp, −4.8pp] (see Appendix D for more detail on the bounding exercise).

Overall, the effects within care occupations are consistent with a crowding-out effect of the subsidy, and even when taking selection into account, employment within care occupation falls.

8 Conclusion

In this paper, I present new evidence on the state of the afterschool care market in the United States. I then utilize a novel dataset on 21st Century Community Learning Center Grants to study the impact of afterschool care subsidies on maternal employment. I find that an increase in care availability allows some mothers to work more. I conclude with a back-of-the-envelope calculation. Using demographic shares from Table 5 and assuming approximately 300-400 mothers per treated school (see Table 4), each grant allows approximately 3.4–4.5 Black and other minority non-Hispanic mothers to move to full-time work. At the same time, approximately 1.8–2.4 fewer mothers report working in care occupations, and among those who report a care occupation, the bounds in Section 7.3 suggest 0.45–1.5 mothers lose employment in response to grants.[14]

Afterschool care opens the full-time margin of work for some mothers, a margin that the school day does not cover. But, mothers who provide care lose care work when institutional care is introduced, and subsidies can impose costs on providers that standard program

[14]Black and other minority non-Hispanic mothers make up 18.2% of mothers in grantee communities, and experience a 6.2 percentage point increase in working full time. Therefore $300 \times 18.2\% \times 6.2\text{pp} = 3.4$ and $400 \times 18.2\% \times 6.2\text{pp} = 4.5$. Similarly, 3.1% of mothers work in care occupations, so $300 \times 3.1\% \times 4.8\text{pp} = 0.45$ and $400 \times 3.1\% \times 12.2\text{pp} = 1.5$. See Section 7.2 for calculations for care occupation crowd out.

evaluations miss. Childcare affects mothers as both users and providers of care, and understanding its effect on maternal employment requires measuring effects on both.

References

Aizer, A. (2004). Home alone: supervision after school and child behavior. *Journal of Public Economics*, 88(9):1835–1848.

Anstreicher, G. and Jack, R. (2026). Sick Days, Snow Days, and the Labor Market Impacts of Caretaking Inequities.

Berthelon, M., Kruger, D., and Oyarzún, M. (2023). School schedules and mothers' employment: evidence from an education reform. *Review of Economics of the Household*, 21(1):131–171.

Chari, A. V. and Valli, E. (2021). The effect of subsidized childcare on the supply of informal care: Evidence from public kindergarten provision in the US. *Journal of Health Economics*, 77(C).

Cortés, P. and Pan, J. (2023). Children and the Remaining Gender Gaps in the Labor Market. *Journal of Economic Literature*, 61(4):1359–1409.

Dehos, F. T. and Paul, M. (2023). The Effects of After-School Programs on Maternal Employment. *Journal of Human Resources*, 58(5):1644–1678.

Felfe, C., Lechner, M., and Thiemann, P. (2016). After-school care and parents' labor supply. *Labour Economics*, 42(C):64–75.

Fitzpatrick, M. (2010). Preschoolers Enrolled and Mothers at Work? The Effects of Universal Prekindergarten. *Journal of Labor Economics*, 28(1):51–85.

Flood, S. M., Sayer, L. C., and Backman, D. (2025). American Time Use Survey Data Extract Builder: Version 3.3.

Gibbs, C., Wikle, J. S., and Wilson, R. (2024). A Matter of Time? Measuring Effects of Public Schooling Expansions on Families' Constraint.

Goldin, C. (2014). A Grand Gender Convergence: Its Last Chapter. *American Economic Review*, 104(4):1091–1119.

Havnes, T. and Mogstad, M. (2011). Money for nothing? Universal child care and maternal employment. *Journal of Public Economics*, 95(11):1455–1465.

Herbst, C. M. (2017). Universal Child Care, Maternal Employment, and Children's Long-Run Outcomes: Evidence from the US Lanham Act of 1940. *Journal of Labor Economics*, 35(2):519–564.

Humphries, J. E., Neilson, C., Ye, X., and Zimmerman, S. D. (2024). Parents' Earnings and the Returns to Universal Pre-Kindergarten.

Kleven, H., Landais, C., and Søgaard, J. E. (2019). Children and Gender Inequality: Evidence from Denmark. *American Economic Journal: Applied Economics*, 11(4):181–209.

Martínez A., C. and Perticará, M. (2017). Childcare effects on maternal employment: Evidence from Chile. *Journal of Development Economics*, 126(C):127–137.

O'Donnell, P. and Ford, J. R. (2013). The Continuing Demand for 21st Century Community Learning Centers Across America: More Than Four Billion Dollars of Unmet Need | The Expanded Learning and Afterschool Project.

Padilla-Romo, M. and Cabrera-Hernández, F. (2019). Easing the Constraints of Motherhood: The Effects of All-Day Schools on Mothers' Labor Supply. *Economic Inquiry*, 57(2):890–909. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1111/ecin.12740.

Price, B. M. and Wasserman, M. (2024). The Summer Drop in Female Employment. *The Review of Economics and Statistics*, pages 1–46.

Saporito, S., Van Riper, D., and Wakchaure, A. (2013). Building the School Attendance Boundary Information System (SABINS): Collecting, Processing, and Modeling K to 12 Educational Geography. *Journal of the Urban and Regional Information Systems Association*, 25(2):49–62.

United States Department of Health and Human Services. Administration for Children and Families. Office of Planning, Research and Evaluation and NSECE Project Team (National Opinion Research Center) (2014). National Survey of Early Care and Education (NSECE), [United States], 2012: Version 16.

United States Department of Health and Human Services. Administration for Children and Families. Office of Planning, Research and Evaluation and NSECE Project Team (National Opinion Research Center) (2021). National Survey of Early Care and Education (NSECE) Public-Use Files, [United States], 2019: Version 10.

Urban Institute (2025). Common Core of Data, National Center for Education Statistics, Education Data Portal.

U.S. Census Bureau (2025a). American Community Survey [Restricted Data].

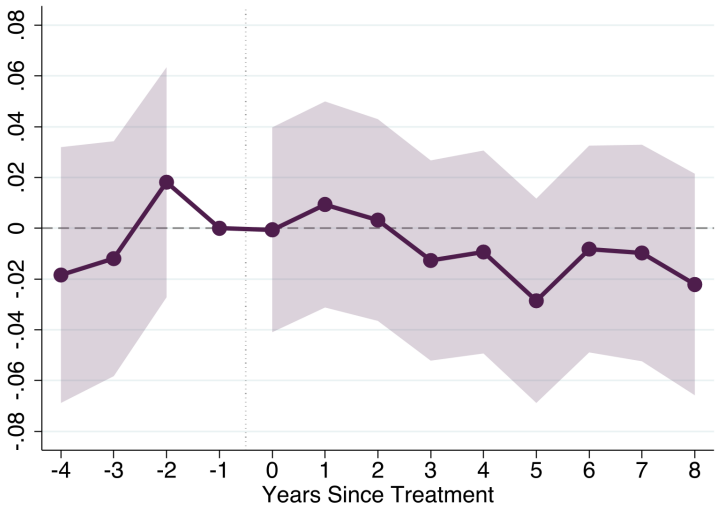
U.S. Census Bureau (2025b). LEHD Snapshot Release S2022. U.S. Census Bureau, Center for Economic Studies, Research Data Centers, Washington, DC.

U.S. Department of Education (2023). Nita M. Lowey 21st Century Community Learning Centers Program Title IV, Part B of the Elementary and Secondary Education Act of 1965 DRAFT Non-Regulatory Guidance.

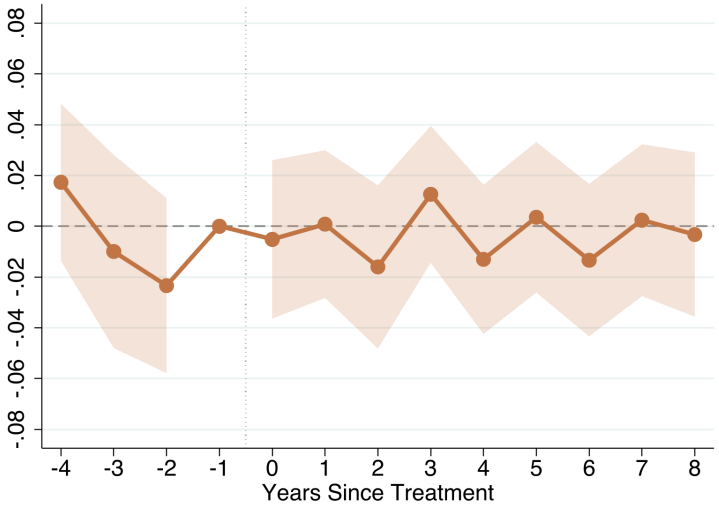
Wikle, J. and Wilson, R. (2023). Access to Head Start and Maternal Labor Supply: Experimental and Quasi-Experimental Evidence. *Journal of Labor Economics*, 41(4):1081–1127.

9 Figures

Figure 1: Change in parental employment around receipt of 21st CCLC grant



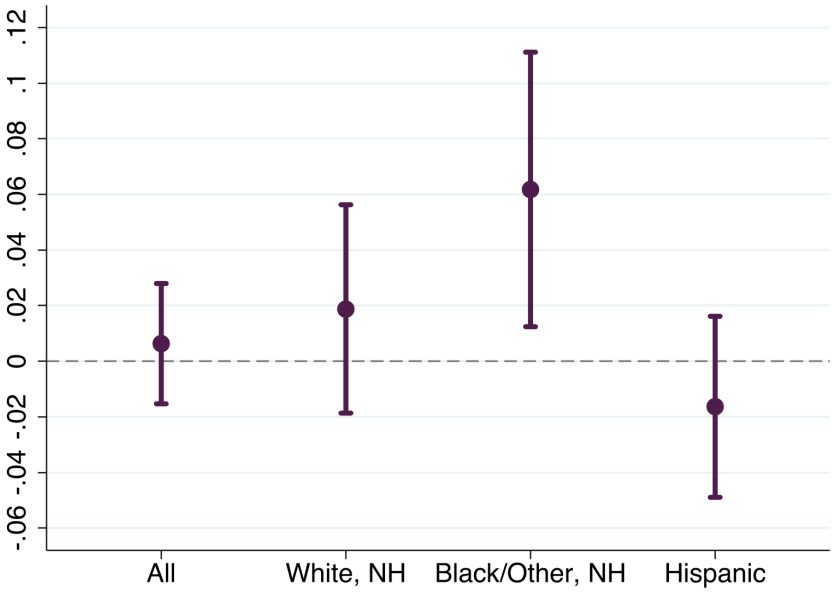
(a) Maternal employment



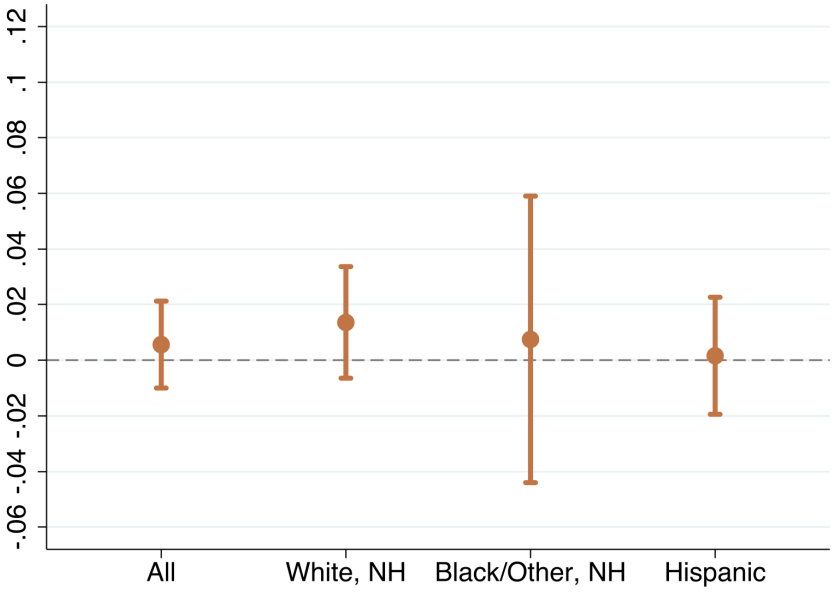
(b) Paternal employment

Notes: These graphs report event-study estimates from equation (2), with an indicator for employment as the outcome and relative year $k = -1$ as the omitted reference period. Regressions include school and state-by-year fixed effects. Standard errors are clustered at the school level. Shaded regions represent 95% confidence intervals. Estimates reported separately for mothers and fathers who have a child between the ages of 5 and 10 and live within 10 kilometers of a CCLC-eligible elementary school in Colorado, Oklahoma, or Texas, 2001-2017. FSRDC Project Number 2593 (CBDRB-FY26-P2593-R13357)

Figure 2: Change in likelihood of working full time



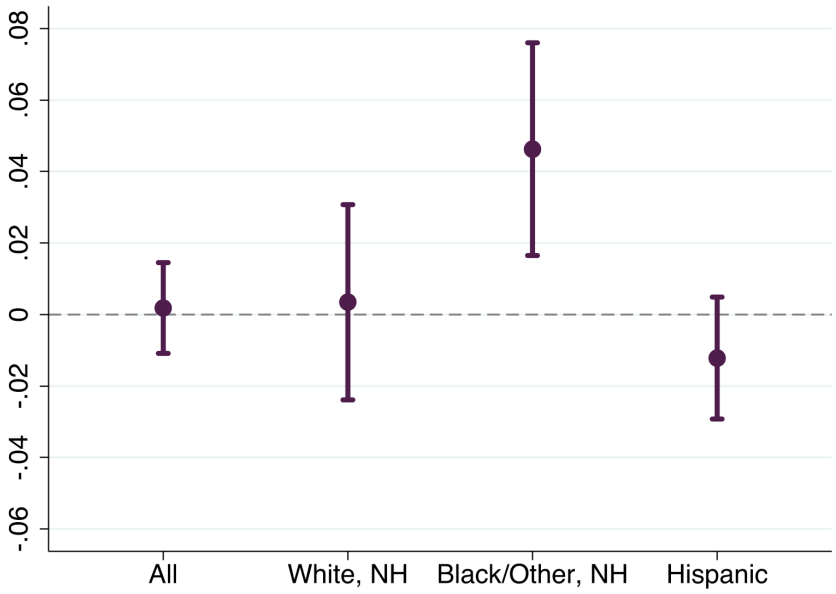
(a) Mothers



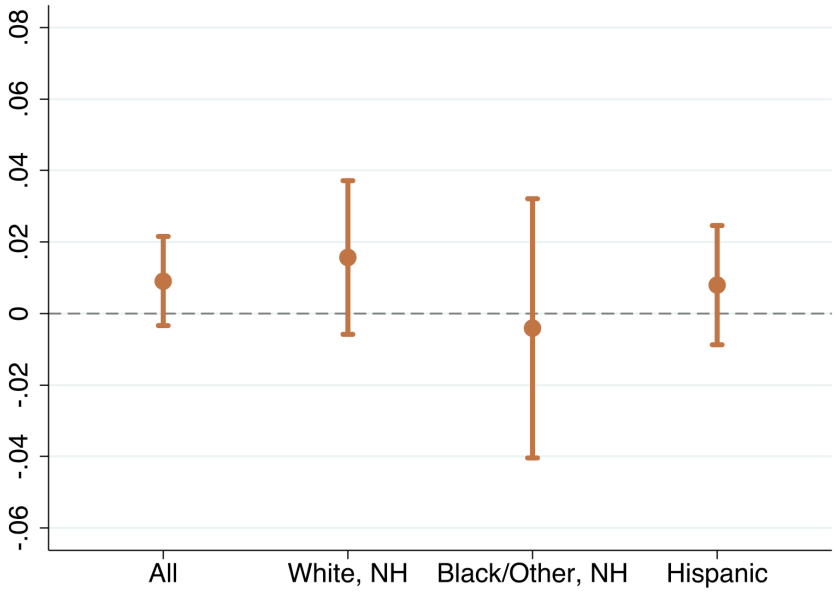
(b) Fathers

Notes: These figures report estimates of β_1 from equation (3) for mothers with the likelihood of working full time as the outcome. Full time is measured as reporting usual hours of work as 35 or more. Regressions include school and state-by-year fixed effects. Standard errors are clustered at the school level. Bars represent 95% confidence intervals. Estimates reported for the full sample and separately for mothers and fathers, with the following subgroups: white non-Hispanic; Black and other minority non-Hispanic; and Hispanic. FSRDC Project Number 2593 (CBDRB-FY26-P2593-R13357)

Figure 3: Change in log hours worked



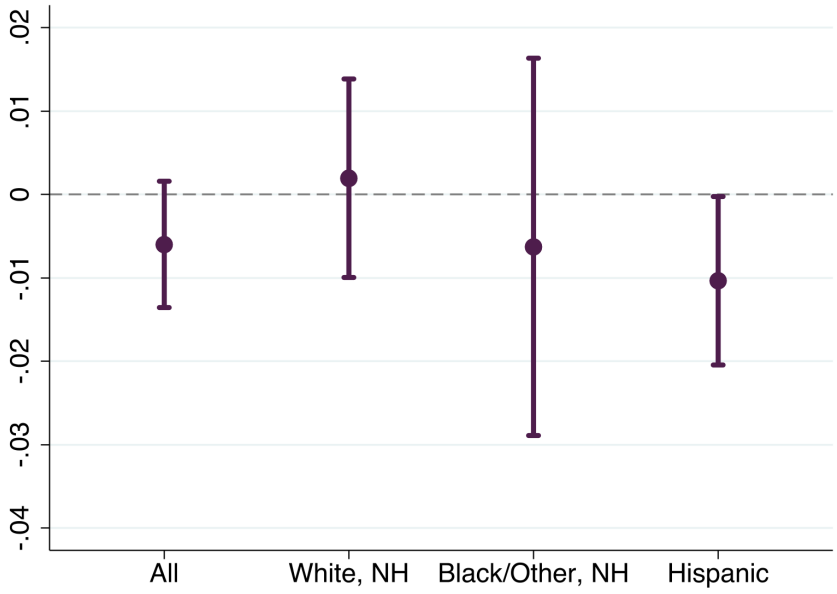
(a) Mothers



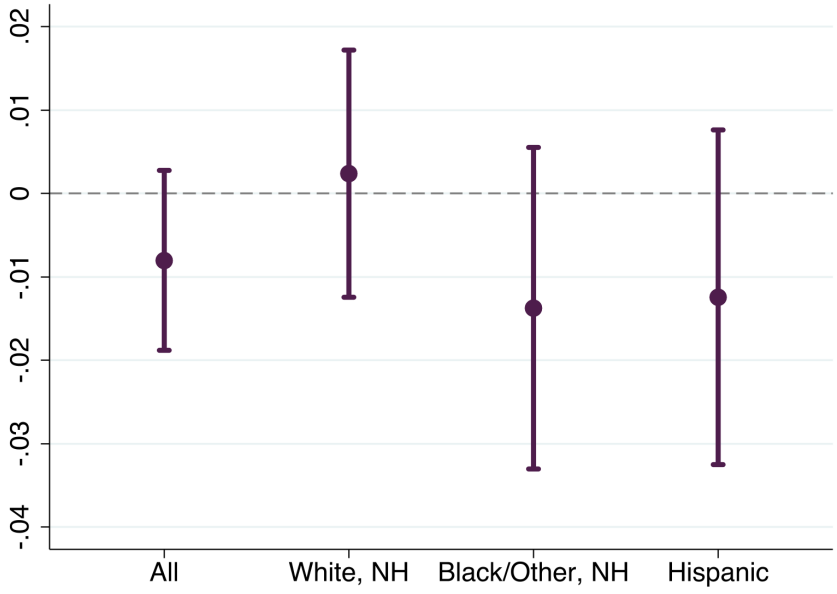
(b) Fathers

Notes: These figures report estimates of β_1 from equation (3) for mothers for the outcome log hours worked. Regressions include school and state-by-year fixed effects. Standard errors are clustered at the school level. Bars represent 95% confidence intervals. Estimates reported for the full sample and separately for mothers and fathers, with the following subgroups: white non-Hispanic; Black and other minority non-Hispanic; and Hispanic. FSRDC Project Number 2593 (CBDRB-FY26-P2593-R13357)

Figure 4: Change in care occupations



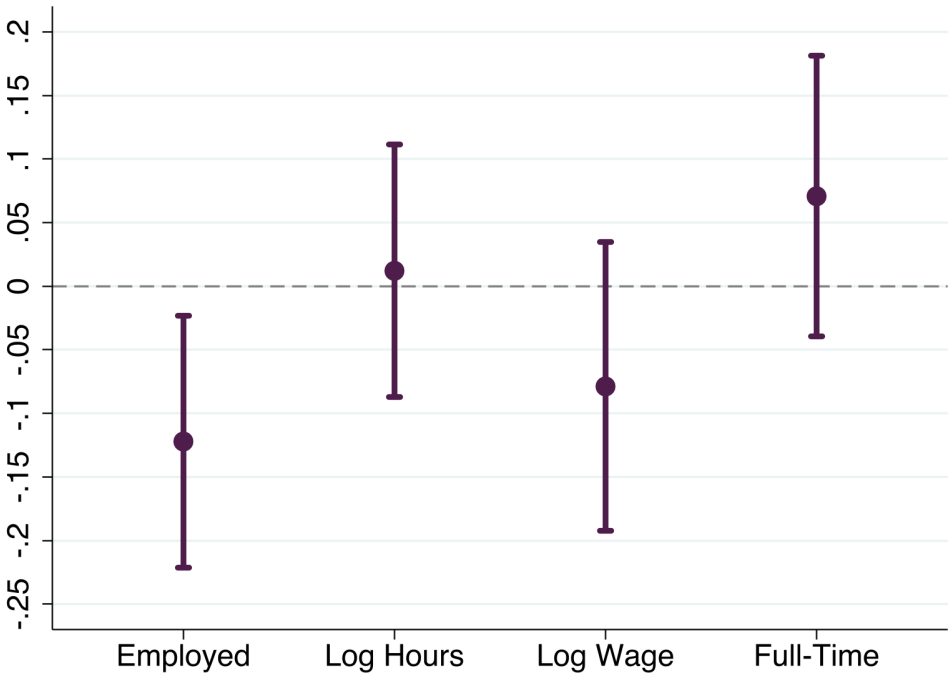
(a) Mothers of school age children



(b) Women, non-parents

Notes: This figure reports estimates of β_1 from equation (3) for mothers with a child between the ages of 5 and 10 and for women who are not parents. The outcome is an indicator for reporting being in a care occupation (Census occupation codes 4600 and 4610). Regressions include school and state-by-year fixed effects. Standard errors are clustered at the school level. Bars show 95% confidence intervals. I report estimates for the entire sample and separately by each race/ethnicity group. FSRDC Project Number 2593 (CBDRB-FY26-P2593-R13357)

Figure 5: Change in employment within care occupations



Notes: This figure reports estimates of β_1 from equation (3) restricted to mothers who report being in a care occupation. Outcomes are an indicator for being employed, log hours, log wage, and an indicator for working full time. Regressions include school and state-by-year fixed effects. Standard errors are clustered at the school level. Bars show 95% confidence intervals. See Appendix D for a bounding exercise addressing selection into/out of care-occupation reporting. FSRDC Project Number 2593 (CBDRB-FY26-P2593-R13357)

10 Tables

Table 1: Care of school-age children: National Survey of Early Care and Education

	2012	2019	Pooled
Any non-parental care (%)	55.6	49.8	52.7
	(1.2)	(1.1)	(0.8)
Institutional care (%)	19.2	13.9	16.6
	(0.9)	(0.7)	(0.6)
Non-institutional care (%)	26.8	29.9	28.3
	(1.0)	(1.1)	(0.7)
Paid non-institutional care (%)	9.6	7.3	8.5
	(0.6)	(0.6)	(0.4)
Children (millions)	23.8	23.7	23.7
Observations	10,202	7,001	17,203

Notes: National Survey of Early Care and Education (NSECE), 2012 and 2019 household survey public-use files; children aged 5–10 years (60–131 months). Standard errors in parentheses. Any non-parental care is regular care by any provider other than a parent. Institutional care is regular care in a center-based or other organizational program. Non-institutional care is regular care by an individual provider outside a center; paid non-institutional care is care by a non-institutional provider with whom the household has a paid arrangement. The pooled column combines the two years; the pooled count of children is the annual average. Observations are unweighted.

Table 2: Non-institutional providers of school-age care: National Survey of Early Care and Education

	All	Hispanic	Non-Hispanic	Hispanic share (%)
All providers (thousands)	2,738	437	2,217	16.5
				(1.4)
Paid providers (thousands)	592	123	443	21.8
				(2.7)
Providers, mothers (thousands)	965	220	717	23.5
				(2.7)
Paid providers, mothers (thousands)	154	46	104	30.7
				(6.0)
Non-household children per paid provider	1.63	1.55	1.63	
	(0.09)	(0.18)	(0.10)	
Observations	1,997	444	1,511	

Notes: National Survey of Early Care and Education (NSECE), 2012 and 2019 home-based provider survey public-use files, pooled. Standard errors in parentheses. Non-institutional providers regularly care for at least one school-age child and are not state-listed home-based providers. Paid providers have a paid arrangement; mothers are proxied as providers who also care for a child from their own household. Non-household children per paid provider is the number of school-age children from other households enrolled with each paid provider. Counts of providers are annual averages of the two years. Observations are unweighted.

Table 3: 21st Century Community Learning Centers

	Colorado (2003–2016)	**Oklahoma** (2003–2016)	**Texas** (2003–2016)
Total schools	934–1,081	958–986	3,789–4,764
Title I schools	334–616	770–881	2,512–3,809
CCLC cohorts	7	15	9
Sites per cohort	9–35	6–22	65–195
Total sites awarded	148	192	1,020

Notes: Overview of 21st CCLC program dataset linked to NCES school directory and enrollment data, 2003–2016, for Colorado, Oklahoma, and Texas. See Section 3.1 and Appendix C for data collection and construction details.

Table 4: Oklahoma 21st CCLC Program Summary by School Level, 2005–2009

	Elementary		**Middle**		**High**	
	Program	School	Program	School	Program	School
Avg. enrollment	186.6	399.2	167.5	364.0	280.7	958.5
Avg. paid staff	19.4	—	13.8	—	13.3	—
Free/reduced-price lunch						
FRPL (%)	71.7	77.1	62.5	68.9	52.7	61.6
Race/ethnicity (% of students)						
Black	8.0	8.0	14.3	12.9	23.9	23.2
White	48.2	50.3	47.6	49.2	40.9	43.3
Hispanic	13.4	10.8	7.4	8.0	7.2	7.0
Asian	0.5	0.7	0.2	0.8	1.5	1.3
Native American	28.7	30.3	25.6	29.1	22.3	25.2
N	100	—	34	—	20	—

Notes: Program columns report demographic and free-and-reduced-price lunch (FRPL) shares among students enrolled in the CCLC program specifically, derived from the Oklahoma 21st CCLC program summary reports, 2005-2009, collected by the author. School columns report school-wide demographic and free-and-reduced-price lunch (FRPL) shares from the National Center for Education Statistics (NCES). Averages are enrollment-weighted and pooled across 2005, 2006, 2007, and 2009.

Table 5: Summary statistics: Mothers and fathers of school-age children

	Fathers		Mothers	
	No grant	Grant	No grant	Grant
Panel A. Demographics				
White, NH (%)	47.8	35.9	44.4	33.0
Black and other minority, NH (%)	14.1	14.3	16.9	18.2
Hispanic (%)	38.0	49.8	38.7	48.7
Age (years)	38.4	37.8	35.2	34.9
High school (%)	81.0	73.6	84.0	77.0
Panel B. Labor market				
Employed (%)	90.8	88.7	64.6	62.9
Full time (%)	90.2	88.7	54.3	51.9
Usual weekly hours	43.2	41.3	26.8	25.9
Hourly wage (dollars)	12.97	11.74	9.90	8.80
Care occupation (%)	0.1	0.2	3.0	3.1
Family income (dollars)	69,630	62,597	59,934	53,333
Observations	92,000	23,100	121,500	31,800

Notes: Means from restricted-access American Community Survey data for Texas, Colorado, and Oklahoma. NH: non-Hispanic. Mothers and fathers are parents living with a child aged 5–10. Grant columns report parents in communities served by a 21st CCLC elementary school grant; no grant columns report parents in control communities with >60% FRPL. Mean hourly wage converted from mean log hourly wage. Observation counts are unweighted and rounded for disclosure. Care occupation is the share working as a childcare worker or personal care aide, see paper for details. FSRDC Project Number 2593 (CBDRB-FY26-P2593-R13357)

Online Appendix

A Model proofs and calculations

B Model

Next, I present an overview of a stylized model to explore the impacts of a childcare subsidy on all mothers within a community. See Appendix A for further details and proofs. In the model, mothers of school-age children make up the agents who may either supply or demand childcare. Mothers fall into one of three categories, all of whom have one school-aged child: L mothers, those who are employed in non-childcare-related occupations in the labor market; I mothers, those who supply non-institutional childcare in addition to caring for their own children; and N mothers, mothers who stay home with their own children, do not demand childcare, and are not employed in the labor market. Overall employment is considered the sum of both L and I mothers.

At the baseline, there is no center-based childcare. This is due to the fixed entry costs of providing center-based childcare in a low-income area, which include buildings, insurance, and other costs. These costs make private provision of center-based childcare unprofitable at baseline. The model introduces a government subsidy to address this market failure in these areas.

Define p as the price that L workers pay for non-institutional childcare, w_i as the wage a worker earns, and r as the value mothers obtain from staying home to care for only their children as N mothers. I mothers can provide care for n children, including their own. This n is small and can be considered either a legal restriction given by childcare regulations, or a restriction due to space or capacity. The payoffs for each group of mothers are as follows:

$$V^L(w_i) = w_i - p$$
$$V^I = (n-1)p$$
$$V^N = r$$

Therefore, a mother chooses non-childcare employment over childcare-related employment if and only if $w_i - p \geq (n-1)p \Rightarrow w_i \geq np$ and mothers choose to provide childcare over leaving the labor force if and only if $(n-1)p \geq r$. In the baseline equilibrium, the share of mothers who are employed in non-childcare occupations is $\frac{n-1}{n}$ and the share who are employed as childcare providers is $\frac{1}{n}$.

Policy shock of subsidized childcare Consider a policy that introduces K slots, as a share of the population, of free center-based childcare. These slots are accessed on a first-come-first-served basis. Because non-childcare employed mothers are the only ones who utilize childcare when the subsidy is introduced, childcare prices are most salient for them, and all K slots are allocated to L mothers. In a price-unconstrained equilibrium, demand for non-institutional care falls and the share of non-institutional care providers becomes $\frac{1-K}{n}$. Once the price of non-institutional care falls to $\hat{p}(K) < \frac{r}{n-1}$, the reservation price binds and non-institutional providers exit the labor market.

B.1 Baseline equilibrium

At the baseline, assume $(n-1)p^0 \geq r$ and all mothers choose either childcare or non-childcare employment. Demand for childcare is equal to the share of mothers who are employed in non-childcare occupations, $D = \mu^L = 1 - \mu^I$, and supply of childcare is determined by the share of mothers who are employed as childcare providers, $S = (n-1)\mu^I$. Therefore, in equilibrium, the share of mothers who are employed in non-childcare occupations is $\frac{n-1}{n}$ and the share who are employed as childcare providers is $\frac{1}{n}$. Define $G(w)$ as the CDF of wages, assumed continuous and strictly increasing. Then $G(w^0) = \mu^I = \frac{1}{n} \Rightarrow w^0 = G^{-1}(\frac{1}{n})$ and $p^0 = \frac{G^{-1}(\frac{1}{n})}{n}$.

B.2 Policy shock of subsidized childcare

First, consider the case where the market adjusts freely. Let $\hat{\mu}^L$, $\hat{\mu}^I$ denote the post-shock, price-unconstrained equilibrium shares. Prices in this market fall to $\hat{p}(K)$ and the threshold wage for mothers who choose to work outside of childcare over providing childcare is $\hat{w} = n\hat{p}(K)$. Demand for non-institutional childcare falls to $D = \hat{\mu}^L - K$. Supply remains $S = \hat{\mu}^I(n-1)$. When the price is not binding, all mothers remain employed and the share who are in non-childcare occupations is $\hat{\mu}^L = 1 - \hat{\mu}^I$, and therefore the market clears with $\hat{\mu}^I = \frac{1-K}{n}$, $\hat{w} = G^{-1}(\frac{1-K}{n})$, and $\hat{p}(K) = \frac{G^{-1}(\frac{1-K}{n})}{n}$.

Reservation price binds As K increases, the price of non-institutional childcare falls. After some threshold, $\overline{K}$, the price of non-institutional childcare falls such that $(n-1)\hat{p}(K) < r$. The reservation price binds and fixes the price of non-institutional childcare to $\overline{p} = \frac{r}{n-1}$, fixing the wage cutoff to $\overline{w} = n\overline{p}$, with the center-based childcare slot threshold occurring at $\overline{K} = 1 - nG(n\overline{p})$.

Let $\overline{\mu}^L$, $\overline{\mu}^I$ denote the constrained equilibrium shares. Because $\hat{p}(K)$ is strictly decreasing in K, then once $K > \overline{K}$:

$$
\begin{aligned}
\overline{p} > \hat{p}(K) \Rightarrow \\
G(n\overline{p}) > G(n\hat{p}(K)) \Rightarrow \\
1 - G(n\overline{p}) < 1 - G(n\hat{p}(K)) \Rightarrow \\
\overline{\mu}^L < \hat{\mu}^L \Rightarrow \qquad (4) \\
\frac{\overline{\mu}^L - K}{n-1} < \frac{\hat{\mu}^L - K}{n-1} \Rightarrow \\
\overline{\mu}^I < \hat{\mu}^I \qquad (5)
\end{aligned}
$$

Because $\hat{\mu}^L + \hat{\mu}^I = 1$, inequalities (4) and (5) together imply $\overline{\mu}^L + \overline{\mu}^I < 1$, so the share of non-employed mothers is strictly positive. The mothers who exit are among those with wages below $\overline{w}$, the bottom of the wage distribution.

Implications of the model

1. **Mothers who utilize childcare gain.** Center-based childcare subsidies eliminate childcare costs for mothers who receive slots. While hours are outside of the model, the extended hours and reliability of institutional childcare allow mothers to work longer hours.

2. **Price compression for non-institutional childcare.** Because of the increased competition, non-institutional providers see lower prices and earnings per child.

3. **Childcare providers change occupations.** Because price falls, the share of mothers who provide non-institutional care falls and mothers who leave these occupations move into non-childcare employment.

4. **Employment falls if the reservation price binds.** If the price falls enough, individuals in non-institutional care with the lowest outside wages leave employment entirely.

B.3 Proofs of model implications

1. **Mothers who demand childcare gain.** A mother who receives a slot has payoff w_i instead of $w_i - p$, a gain equal to the price of non-institutional care. The reliability of institutional childcare may allow mothers to work longer hours, further increasing their payoff.

2. **Price compression.** For $K > 0$, $\frac{1-K}{n} < \frac{1}{n}$, and because G^{-1} is increasing, $\hat{p}(K) = \frac{G^{-1}\left(\frac{1-K}{n}\right)}{n} < \frac{G^{-1}\left(\frac{1}{n}\right)}{n} = p^0$.

3. **Providers leave childcare occupations.** The share of mothers who provide care falls from $\frac{1}{n}$ to $\frac{1-K}{n}$, a fall of $\frac{K}{n}$. Because $\hat{\mu}^L = 1 - \hat{\mu}^I$, the share in non-childcare employment rises by $\frac{K}{n}$ and no mother leaves employment when the reservation price does not bind.

4. **Employment falls if the reservation price binds.** For $K > \overline{K}$, inequalities (4) and (5) show $\overline{\mu}^L + \overline{\mu}^I < 1$, so some mothers who would otherwise provide care exit employment.

C 21st Century Community Learning Center Grant data collection

I collected data on 21st Century Community Learning Center programs for three states: Colorado, Oklahoma, and Texas. Data on program locations and award date were collected from each state's website. Collected data was contained in various PDFs or website pages. I converted these PDF lists of site names to usable CSV versions using Python. While most states in the US have information on current programs, these three states also had historical information published. For missing years, I also utilized the Wayback machine and scraped websites to collect older years of data. For all three states, I have collected data from the start of the 21st CCLC grants, from 2003 up until 2016. While I have collected data for 2017-current day for Colorado and Oklahoma, I will be utilizing data through 2016 to maintain consistency across all three states and in order to avoid the years impacted by Covid.

For each state, I collected site names for each year the grant was awarded. I then linked these site names to NCES data utilizing a four step process. First, I linked as many sites on exact string matches as possible. For the remaining schools, I utilized Google Places API to geolocate schools, and then linked those geolocated schools to NCES data using a geospatial match. Next, I scraped NCES's search function to find NCES IDs of remaining schools. For the final, unmatched schools, I hand-linked those sites to NCES data. A small handful of sites were not matched and dropped from the analysis due to being unable to link the site name with any school building across all four linkage methods.

D Bounds on employment within care occupations

Selection is a concern in the within-care occupation analysis because mothers who switch to a non-care occupation leave the subsample. In order to understand the impact of selection, I estimate point-estimate bounds, relying on the overall decline in the share of mothers reporting a care occupation (0.6 percentage points), although I note that this estimate is not statistically significant. The −12.2pp employment decline reflects both selection out of care occupations, $19.1\% \times \left(e_{stay} - e_{leave}\right)$, and the true causal effect of grants on employment in care occupations (δ):

$$\underbrace{68.5\%}_{\substack{\text{employment within} \\ \text{care occupations}}} = \underbrace{19.1\%}_{\substack{\text{leaver} \\ \text{share}}} \times \left(e_{leave}\right) + \underbrace{80.9\%}_{\substack{\text{stayer} \\ \text{share}}} \times \left(e_{stay}\right)$$

$$\underbrace{-12.2\text{pp}}_{\text{estimated DID}} = \delta + \underbrace{19.1\%}_{\substack{\text{leaver} \\ \text{share}}} \times \left(e_{stay} - e_{leave}\right)$$

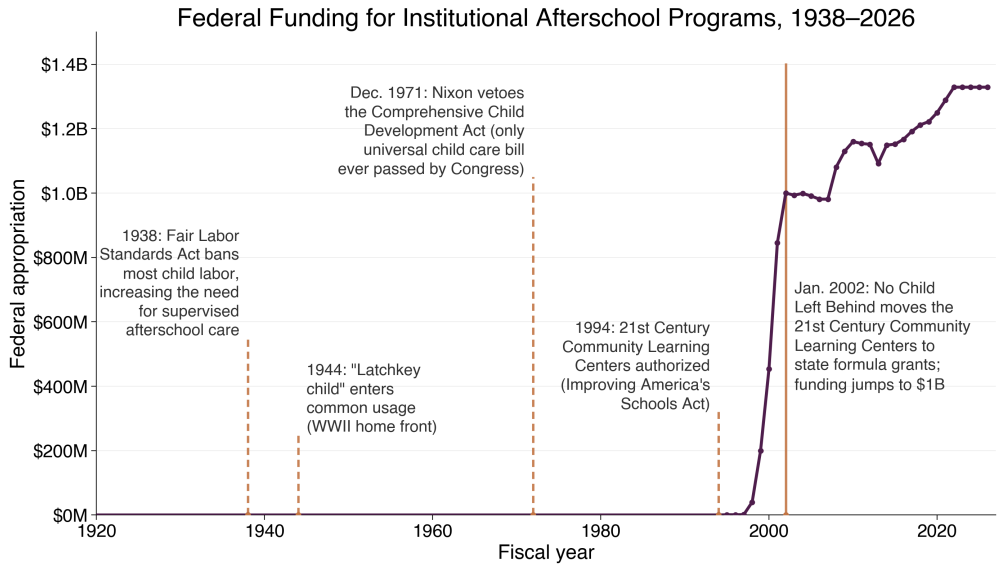
The leaver share is calculated as the overall decline in the share of mothers reporting a care occupation (0.6 percentage points) as a share of the baseline rate of mothers who report being in a care occupation in grantee communities (3.14%, see Table 5). Fix the baseline care occupation employment rate to the population average among mothers who report a care occupation in the public ACS (68.5%, see Table A1). Because ACS records most recent occupation for individuals who are not employed, leavers are relatively more likely to be employed, so I assume equal or higher rates of employment compared to stayers. Therefore, I vary e_{leave} from 68.5% to a midpoint of 85%, to 100% and solve for e_{stay} and δ:

e_{leave}	e_{stay}	Composition effect	Implied δ
100%	61.1%	−7.4pp	−4.8pp
85%	64.6%	−3.9pp	−8.3pp
68.5%	68.5%	0pp	−12.2pp

Bounded estimate: Because e_{leave} cannot exceed 100%, selection alone cannot explain the full decline. Under the assumption that $e_{leave} \geq e_{stay}$, the true effect is bounded by $\mathbf{-12.2}\text{pp} \leq \delta \leq \mathbf{-4.8}\text{pp}$.

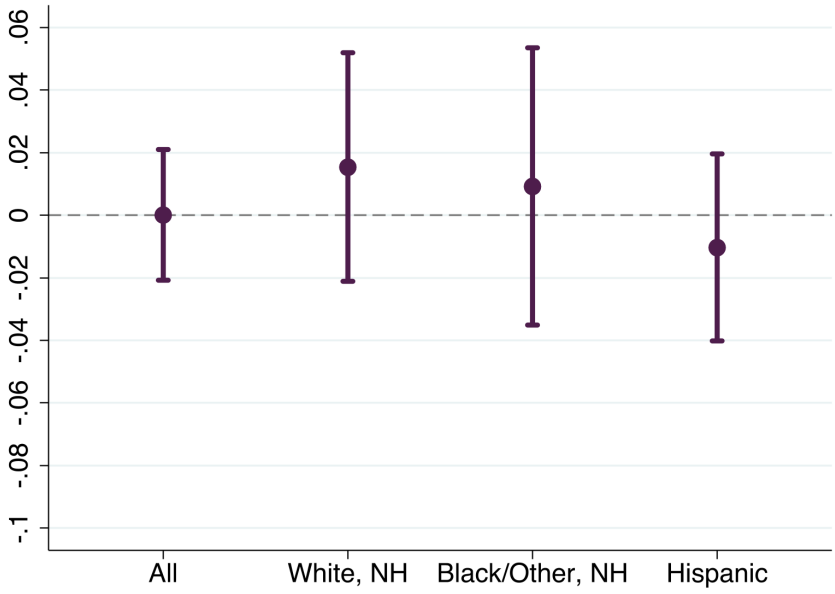
Appendix figures and tables

Figure A1: Federal funding for institutional afterschool programs

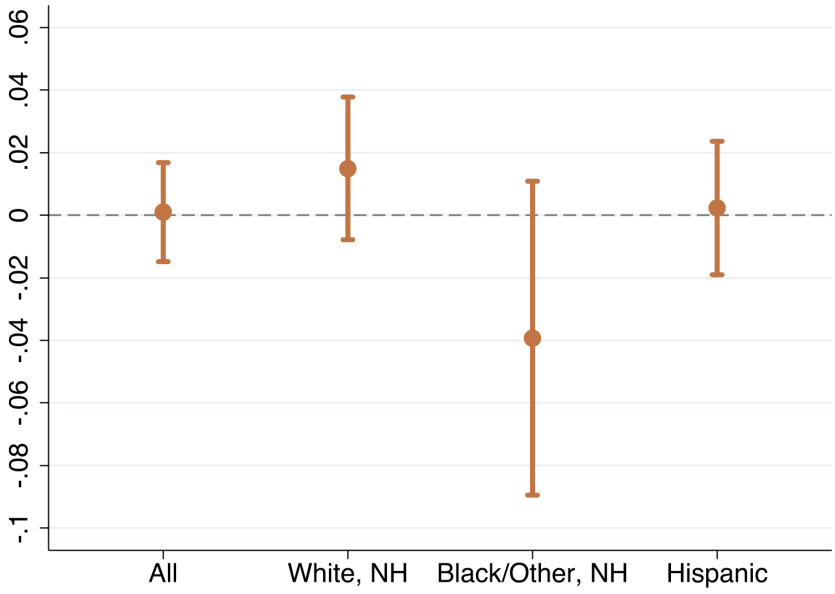


Notes: For more information on the Fair Labor Standards Act, see information on Child Labor from the Department of Labor (https://www.dol.gov/agencies/whd/child-labor). For more information on the phrase "latchkey child", see the dictionary entry at https://www.merriam-webster.com/dictionary/latchkey%20child. For information from the Senate on the Comprehensive Child Development Act, see https://www.senate.gov/legislative/vetoes/messages/NixonR/S2007-Sdoc-92-48.pdf. For more information from Congress on the Improving America's Schools Act, see https://www.congress.gov/bill/103rd-congress/house-bill/6. For more information on the 21st CCLC component of No Child Left Behind, see https://eric.ed.gov/?id=ED664894. Data on funding amounts are pulled from Afterschool Alliance: afterschoolalliance.org/policy21stcclc.cfm.

Figure A2: Difference-in-differences employment effects for mothers and fathers



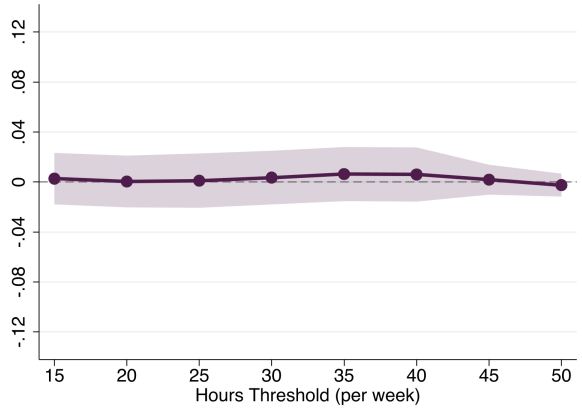
(a) Mothers



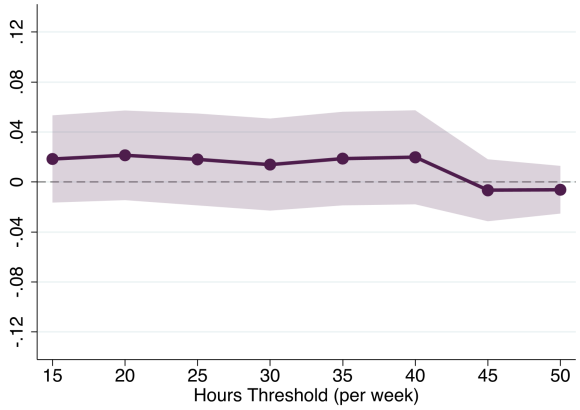
(b) Fathers

Notes: This figure reports estimates of β_1 from equation (3) for mothers and fathers with a child between the ages of 5 and 10. The outcome is an indicator for being employed, which is measured as working even as little as 1 hour in the previous week. Regressions include school and state-by-year fixed effects. Standard errors are clustered at the school level. Bars show 95% confidence intervals. I report estimates for the entire sample and separately by each race/ethnicity group. FSRDC Project Number 2593 (CBDRB-FY26-P2593-R13357)

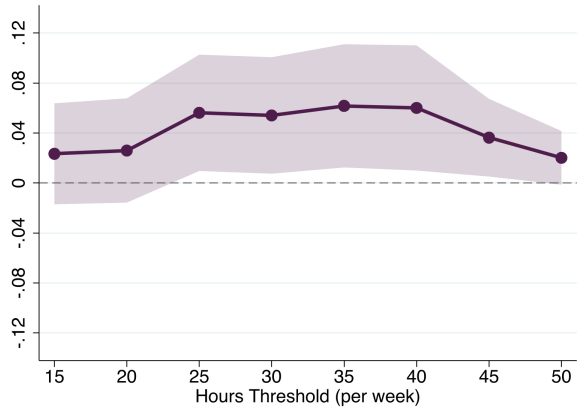
Figure A3: Hours effects for mothers across distribution of hours worked, by race



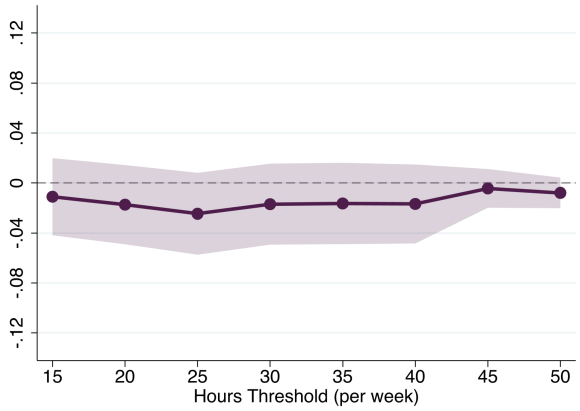
(a) All



(b) White, non-Hispanic



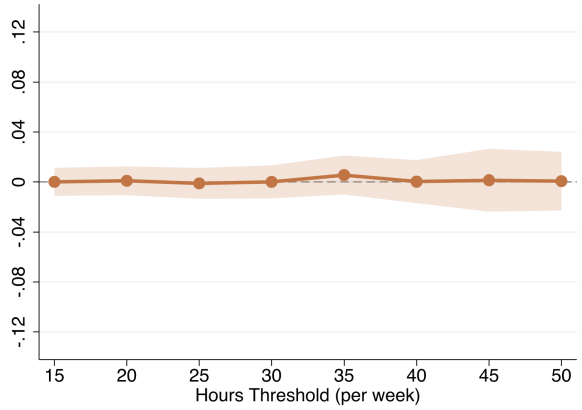
(c) Black and other minority, non-Hispanic



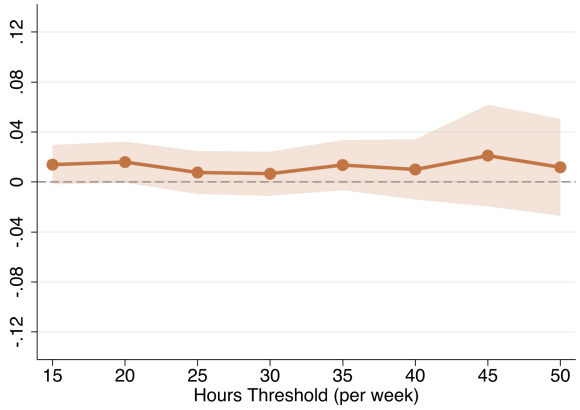
(d) Hispanic

Notes: These figures report estimates of β_1 from equation (3) for mothers. Each point represents a separate equation, with each outcome an indicator for usual hours worked exceeding the threshold on the x-axis. Regressions include school and state-by-year fixed effects. Standard errors are clustered at the school level. The shaded region represents 95% confidence intervals. Estimates reported for the full sample and separately for white, non-Hispanic mothers; Black and other minority, non-Hispanic mothers; and for Hispanic mothers. FSRDC Project Number 2593 (CBDRB-FY26-P2593-R13357)

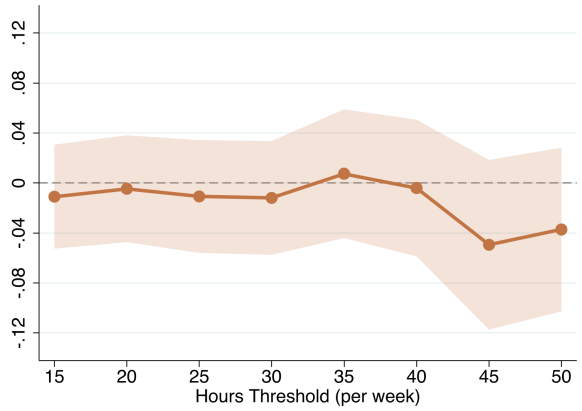
Figure A4: Hours effects for fathers across distribution of hours worked, by race



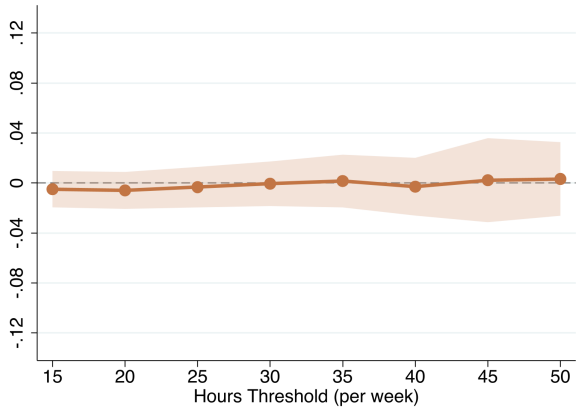
(a) All



(b) White, non-Hispanic



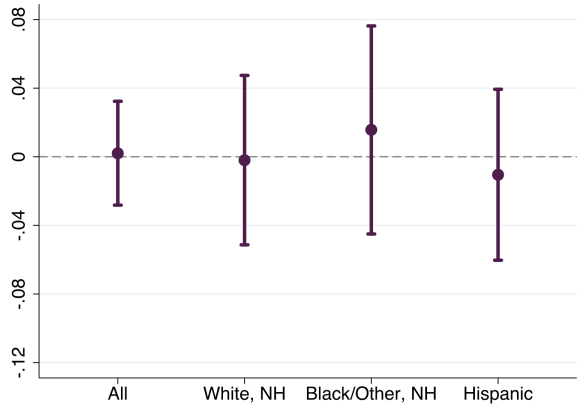
(c) Black and other minority, non-Hispanic



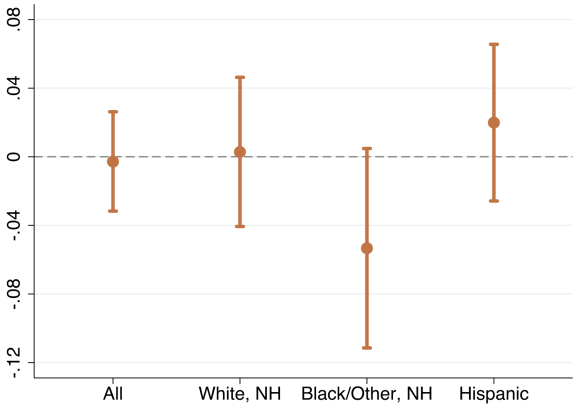
(d) Hispanic

Notes: These figures report estimates of β_1 from equation (3) for fathers. Each point represents a separate equation, with each outcome an indicator for usual hours worked exceeding the threshold on the x-axis. Regressions include school and state-by-year fixed effects. Standard errors are clustered at the school level. The shaded region represents 95% confidence intervals. Estimates reported for the full sample and separately for white, non-Hispanic fathers; Black and other minority, non-Hispanic fathers; and for Hispanic fathers. FSRDC Project Number 2593 (CBDRB-FY26-P2593-R13357)

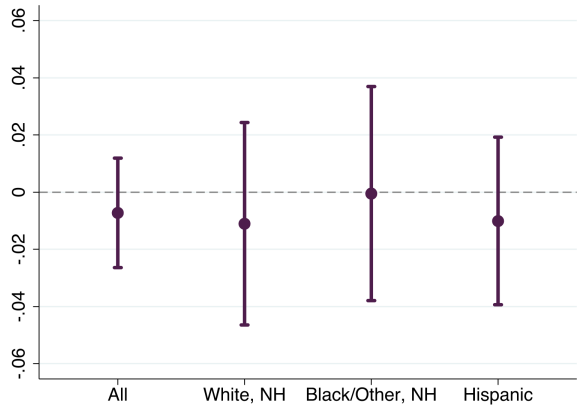
Figure A5: Placebo tests among non-parents



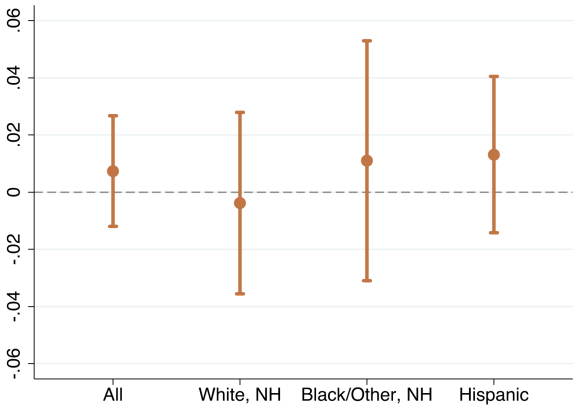
(a) Full-time work, women



(b) Full-time work, men



(c) Log hours, women



(d) Log hours, men

Notes: These figures report estimates of β_1 from equation (3) for women and men who do not have children with the likelihood of working full time and log hours worked as the outcomes. Full time is measured as reporting usual hours of work as 35 or more. Regressions include school and state-by-year fixed effects. Standard errors are clustered at the school level. Bars represent 95% confidence intervals. Estimates reported separately for women and men, with the following subgroups: white, non-Hispanic; Black and other minority, non-Hispanic; and Hispanic. FSRDC Project Number 2593 (CBDRB-FY26-P2593-R13357)

Table A1: Population-level statistics from the Public-Use ACS by Race and Ethnicity

	Mothers				Fathers			
	All	Hisp.	White NH	Black/ other NH	All	Hisp.	White NH	Black/ other NH
Panel A. Full sample								
Age (years)	35.2	34.1	36.2	35.1	38.0	36.5	38.9	38.8
High school (%)	82.8	65.1	95.2	91.7	81.5	60.6	95.4	93.4
Employed (%)	61.2	54.3	64.7	68.1	90.3	89.7	92.2	85.7
Full time (%)	46.5	41.3	47.6	56.0	85.9	84.3	88.6	81.1
Usual weekly hours	25.4	22.6	26.4	29.5	43.1	41.6	45.1	40.7
Hourly wage (dollars)	11.36	8.81	13.36	12.17	18.05	13.04	23.35	18.02
Care occupation (%)	2.6	2.8	2.5	2.6	0.1	0.1	0.1	0.3
Employed, care occ (%)	68.5	70.1	65.6	71.7	–	–	–	–
N	262,392	93,775	129,645	38,972	216,267	73,189	114,909	28,169
N, care occ	7,050	2,794	3,234	1,022	–	–	–	–
Panel B. Family income below 200% of poverty								
Age (years)	33.5	33.6	33.7	33.2	36.4	36.1	36.5	37.5
High school (%)	68.3	54.0	87.7	85.6	62.7	47.8	87.7	86.6
Employed (%)	48.3	44.6	50.2	57.8	83.3	86.5	80.5	73.0
Full time (%)	33.0	30.3	32.6	42.5	75.7	79.1	72.7	64.9
Usual weekly hours	20.3	18.4	21.0	25.5	38.5	39.0	39.2	34.7
Hourly wage (dollars)	6.38	6.05	6.48	7.13	9.42	9.36	9.87	8.87
Care occupation (%)	3.6	3.2	4.2	4.2	0.2	0.1	0.2	0.5
Employed, care occ (%)	67.3	69.4	62.7	68.8	–	–	–	–
N	106,829	57,510	32,356	16,963	72,735	41,572	22,058	9,105
N, care occ	4,238	2,086	1,398	754	–	–	–	–

Notes: Public-use American Community Survey (IPUMS USA), Texas, Colorado, and Oklahoma, 2001–2017, weighted by person weights. Mothers and fathers are parents living with a child aged 5–10. NH: non-Hispanic. Below 200% of poverty refers to family income relative to the poverty threshold. Full time is employed with usual weekly hours of 35 or more. Usual weekly hours are averaged over all parents, counting non-workers as zero. Hourly wage is the exponentiated mean of log hourly wage among employed parents with positive wage income, in nominal dollars. Care occupation is the share working as a childcare worker or personal care aide, see paper for details. Employed, care occ is the share of parents reporting a care occupation who are currently employed. Observation counts are unweighted.

Table A2: Effect of Grants on Working in a Care Occupation: Mothers and Women Without Children

	Mothers	Women without children	Combined (inverse-variance weighted)
All	-0.60	-0.80	-0.67**
	(0.39)	(0.55)	(0.32)
White, non-Hispanic	0.19	0.24	0.21
	(0.61)	(0.76)	(0.47)
Black/other, non-Hispanic	-0.63	-1.38	-1.06
	(1.15)	(0.98)	(0.75)
Hispanic	-1.03**	-1.25	-1.08**
	(0.51)	(1.02)	(0.46)

Notes: Difference-in-differences estimates (treated × post) of the probability of working in a care occupation, in percentage points; standard errors in parentheses. The third column is the inverse-variance-weighted average of the first two, which treats the two estimates as independent and assumes a common effect; mothers receive about two-thirds of the weight. *** p<0.01, ** p<0.05, * p<0.10.