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The Impact of Federal Nutrition Support for Infants and Young Children on Home Daycare Services

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Abstract

Many small, home-based, childcare businesses participate in the Child and Adult Care Food Program (CACFP). This large but little-studied federal program provides fixed reimbursements for food costs to support nutrient-dense meals and snacks for young children in out-of-home care. We use unique, richly detailed administrative data and a policy reform that exogenously increased some providers' reimbursements to estimate causal effects of CACFP on childcare services. An own-price effect on food service, a positive effect on complementary services, and a possible pass-through of reimbursements in prices are predicted. The policy change increases the likelihood that a provider offers dinner by 5.0 percentage points (a relative increase of 28.9%) without offsetting changes in other food offerings. Closing times are extended by 17.04 minutes, the incidence of evening shifts increases by 5.5 percentage points, and the number of shifts of summer care for school-age children increases by 0.164. There is suggestive evidence of price increases for the care of very young children and for before-and-after-school care. We fail to find significant effects on indicators of provider quality. In a heterogeneity analysis, there are no differences in response by child poverty. In contrast, significant findings on dinner and duration in the sample are driven by the non-rural providers. Overall, CACFP may especially benefit low-income households by increasing opportunities to receive subsidized food away from home and better accommodating lengthy work days and nonstandard schedules.

JEL classification

H51, I18, I38, J13

Keywords

child care, subsidies, Child and Adult Care Food Program, daycare home services

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1 Introduction

An important literature presents evidence that early childhood investments have long-lasting, beneficial effects on education, health, and adult labor market success (Currie and Almond, 2011; Currie and Gahvari, 2008). So too, convincing evidence from randomized nutrition programs indicates that nutrition at early ages is a crucial input to human capital development and adult health (e.g., Martorell (2017)). Yet rates of food insecurity among children in the U.S. remain concerningly high, with 19.5% of children (13.4 million) living in food-insecure households (Rabbitt et al., 2023). The federal food and nutrition assistance programs, key components of the U.S. social safety net, direct substantial public resources to nutrition support for infants, very young children, and school-age children. Because children eat a substantial share of their daily meals and snacks away from home, several of the largest safety-net programs target these settings. While the School Lunch and Breakfast Programs (SLBP) supplement food at K-12 schools, the Child and Adult Care Food Program (CACFP) serves infants, toddlers, and children in out-of-home care and early childhood education settings by partially reimbursing child care centers and small, home-based providers for the cost of food to prepare nutritious meals and snacks.[1] In fiscal year 2019, the program provided meal reimbursements for approximately 4.2 million children at a cost of $3.7 billion. This spending is 82% of the School Breakfast Program (SBP) and 73% of the Special Supplemental Nutrition Program for Women, Infants, and Children, or WIC (USDA, 2026; Tiehen, 2020). Despite its large scale and broad policy relevance, CACFP has received far less scholarly attention than the other federal nutrition assistance programs.[2]

This research addresses this major gap in the literature, studying CACFP's impacts on not only food served in care but childcare availability, cost, and quality. Specifically, we ask how an increase in the generosity of reimbursements under CACFP to small, home-based providers impacted which meals and snacks they served, their operating hours, types of care offered (including infant, after-school, and evening care), and price and quality of that care. Heterogeneous responses

[1] The Academy of Nutrition and Dietetics recommends that children in care for four to seven hours per day consume at least one-third of their daily nutritional requirements at their child care provider, rising to one-half to two-thirds for those in care for eight or more hours per day (Erinosho et al., 2013).

[2] Together, the Supplemental Nutrition Assistance Program (SNAP), School Lunch Program (SLP), WIC, SBP, and CACFP accounted for 95 percent of USDA domestic food and nutrition assistance expenditures in FY 2019. For reviews of U.S. food and nutrition assistance programs, see Currie (2007), Hoynes and Schanzenbach (2016), and Bitler and Seifoddini (2019).

by poverty and rurality are also explored.

This study is the first to develop convincing causal evidence on CACFP's effects, leveraging a policy change that exogenously increased many providers' reimbursements. A difference-in-differences (D-I-D) specification is implemented in a longitudinal sample of CACFP-participating providers. Providers receiving low reimbursements before and after the policy change serve as a comparison group for providers originally in low-reimbursement status who saw their reimbursements double. Using unique, richly detailed administrative data on daycare homes for the state of Illinois, we find that the program increased the likelihood that a provider offers dinner by 5.0%-points (a relative increase of 28.9%), increased the incidence of evening shifts by 5.5%-points (a relative increase of 56.1%), and extended providers' day shift closing times by 17.04 minutes with no change in opening times. The availability of summer care for school-age children increased by a marginally significant 10.0%-points, with a significant increase in the number of such shifts of 0.134. There is suggestive evidence of price increases for care of very young children and for before-and-after-school care, and no evidence of price declines. We fail to find significant effects on the rates of accreditation or vacancies. The heterogeneity analysis does not reveal significant differences by child poverty rate but indicates that increases in the incidence of offering dinner, number of shifts, and average duration of the primary shift are driven by non-rural areas.

Our work contributes to several literatures. First, existing studies of CACFP, primarily in nutrition science, find that participating providers serve more nutritious foods and beverages than nonparticipants (Erinosho et al., 2018a,b; Liu et al., 2016; Ritchie et al., 2012), are more likely to adopt practices and policies that promote healthy child development (Erinosho et al., 2018a; Liu et al., 2016; Dev et al., 2014), and face fewer barriers to serving healthy foods (Zaltz et al., 2020). Children attending CACFP-participating providers are less likely to be over- or underweight (Korenman et al., 2013), and their parents report lower levels of household food insecurity (Heflin et al., 2015). These studies often rely on small convenience samples and do not address unobserved selection of providers into CACFP. In contrast, we use unique administrative data and exploit the sharp changes in reimbursements induced by the Healthy Hunger-Free Kids Act of 2010 (P.L. 111296) to identify causal inframarginal effects of CACFP generosity.

Second, this research addresses an important gap in the broader economics literature on U.S. social safety net programs (Currie, 2007; Hoynes et al., 2016; Bitler and Seifoddini, 2019). Despite

extensive research on U.S. food and nutrition programs, surprisingly little is known about CACFP, the federal nutrition program for early childhood care settings. Our examination of the effects of CACFP on childcare services has important implications not only for healthy development from infancy through preschool but also for parents' child care arrangements and labor supply.

Third, we contribute to an emerging literature on the consequences of the Healthy Hunger-Free Kids Act of 2010 (HHFK), a set of reforms to federal nutrition programs that substantially expanded children's access to nutritious meals and snacks. This study provides the first causal evidence on the HHFK reforms that targeted childcare. Prior work has focused primarily on its Community Eligibility Provision (CEP), which allowed high-poverty school districts to implement universal free meals. Evidence from this literature is that CEP improved student achievement (Gordanier et al., 2020; Ruffini, 2022), reduced household food expenditures (Marcus and Yewell, 2022), and lowered food bank utilization (Ruffini et al., 2025). Like CEP, CACFP is predicted to reduce the burden of food provision on households and reduce food insecurity by increasing opportunities for infants and children to consume subsidized food away from home. We also uncover other effects of the CACFP reform that increase childcare services in ways that accommodate lengthy and nonstandard work schedules.

Fourth, this research contributes to the literature on government policies affecting childcare availability and flexibility, areas of longstanding concern for policymakers and stakeholders. Existing research has focused primarily on the effects of child care subsidy policies supported by the federal Child Care and Development Block Grant (CCDBG), state regulations, and quality rating and improvement systems on childcare availability and quality, especially for low-income working families (see Herbst (2023), for a review). Whereas previous studies have focused primarily on extensive-margin responses, such as provider entry and exit (e.g., Blau, 2003b; Hotz and Xiao, 2011; Herbst, 2018), our unique administrative records on Illinois daycare homes allow us to examine providers' intensive-margin adjustments. We also find that subsidizing food service affects childcare schedules and availability in ways that support employment among low-income families, a central objective of other childcare subsidy policies (Blau, 2003a).

The paper is organized as follows. Section 2 provides institutional background on CACFP and changes to the program under HHFK. Section 3 describes data, samples, and variables. Section 4 presents the empirical strategy and evidence in support of the identifying assumptions of the

DID. Section 5 presents the major findings for meal and snack offerings, shift patterns, prices, and quality. We also estimate heterogeneous effects stratified by community characteristics. Section 6 concludes.

2 Institutional Background

Daycare homes are overwhelmingly woman-owned businesses caring for small numbers of children in the owner-operator's residence. They are usually lower-priced than daycare centers and more likely to provide evening and overnight care (Powers et al., 2018), important services for parents working nonstandard schedules (Han, 2004; Pilarz et al., 2019). Daycare home providers disproportionately serve lower-income families and are often low-income themselves. Although the daycare home market segment has been in long-term secular decline, it continues to provide around one-third of licensed childcare capacity.[3]

CACFP reimburses food purchases for "qualified" meals and snacks, which are certain combinations of meals and snacks satisfying the federal government's Healthy Meal Plan guidelines. There are two reimbursement schedules for daycare homes. Since 1996 any licensed daycare home may participate in CACFP and receive the lowest reimbursements for all qualifying meals and snacks they serve. Providers meeting specific additional criteria receive the highest reimbursements for all qualifying meals and snacks served. The following sections detail CACFP meal reimbursement rules for daycare homes and describe the policy changes in HHFK that exogenously increased many CACFP-participating providers' reimbursements.

2.1 CACFP Meal and Snack Reimbursement

Reimbursement is provided for a daily pattern of meals (breakfast, lunch, supper) and snacks (a.m. and p.m.) meeting set standards for nutrition content and serving sizes. Permissible patterns are two meals and one snack, or one meal and two snacks. CACFP only reimburses meals and snacks meeting the federal Healthy Meals Plan guidelines that are served to attending children. Providers report daily meal and snack content and submit receipts for food purchases to a private, nonprofit administrator.

[3] Authors' computation from administrative data.

There are two possible reimbursement amounts for each serving. Low and high reimbursement amounts in our sample period are $0.45 and $1.24 for a qualifying breakfast, $0.19 and $0.69 for a qualifying a.m. or p.m. snack, and $1.40 and $2.32 for a qualifying lunch or supper.[4] Providers meeting so-called "Tier I" requirements are reimbursed at the highest level for qualifying meals and snacks served to any child in their care. The most common way to gain Tier I status is geographic eligibility, which is determined either by free and reduced price lunch (FRPL) rates in a provider's school catchment area or their census block poverty rate.[5] At the time of HHFK's passage, school mode was dominant and census mode rare (Figure A2). Tier I status is also achieved when the provider's household income is below 185% of the Federal Poverty Level (FPL) or they participate in a public means-tested program, including SNAP and TANF (termed "categorical eligibility").

If Tier I requirements are not met, it is still possible to achieve higher reimbursement levels on a child-by-child basis by documenting the low-income status or public program participation of an enrolled child's household. These "Tier II" rules generate "mixed" and "all high" modes, depending on whether some or all enrolled children meet the criteria. A small minority of CACFP participants use mixed and all high modes (Figure A2).

2.2 The 2010 Healthy, Hunger-Free Kids Act

Of all the federal nutrition programs, CACFP has changed most over time. Prior to 1996, CACFP reimbursements were not means-tested. In 1996, concerns about daycare home fraud led Congress to create a low-reimbursement schedule and impose the Tiering system. In 2010, Congress somewhat reversed course with HHFK, weakening these means-tests by modifying CACFP's school mode eligibility to expand access to Tier I.[6] Prior to 2011, daycare homes participated via school mode if they lived in a school boundary of a public elementary school with a FRPL rate of at least 50%. Since HHFK's implementation in 2011, a provider is eligible at the Tier I level if they reside in an attendance boundary of an elementary, middle, or high school with a FRPL rate of at least 50%. This change allowed providers living in areas of less-dense poverty, but close to areas of dense poverty, to achieve geographic eligibility.

[4] Daily reimbursements for the two allowed meal patterns at the high level are 2.08 times that at the low level.

[5] Figure A1 provides a guide to all six modes of CACFP eligibility that determine reimbursement payments to daycare home providers.

[6] From July 1, 2021 to June 30, 2022, CACFP operated under a temporary waiver that reimbursed all daycare homes at the highest tier in response to the COVID pandemic (Bacon et al., 2025).

The HHFK Act also mandated redetermination of Tier I or Tier II status for every CACFP-participating daycare home. Many Tier II daycare homes were discovered to be misclassified and moved into Tier I. These misclassifications were largely driven by failure to identify school mode status. A USDA analysis compared the increase in Tier I providers due to reclassification to school mode with that due to the school mode rule change, concluding that redetermination was "the more important impact of HHFK (David et al. (2012), p. 5-3)." A sharp increase in school mode participation after HHFK is evident in the data (Figure A2).

3 Data Sources, Sample, and Variables

This section describes the data, explains how the analysis sample was constructed, and defines the variables used in the analysis.

3.1 Data Sources

ISBE CACFP Recipient list. We obtained annual lists of the population of CACFP recipients from 2003 through 2017 from the Illinois State Board of Education (ISBE). The recipient lists contain daycare home providers' names, addresses, and CACFP modes (school, census, and categorical, associated with Tier I; all low, mixed, and all high, associated with Tier II). Providers are linked longitudinally using unique identifiers.

Illinois Market Rate Survey. The federal government requires that states conduct a biennial Market Rate Survey (MRS) in order to participate in the CCDBG. The MRS combines administrative records with telephone interviews conducted by staff at nine regional Child Care Resource and Referral (CCR&R) agencies. In addition to prices charged ("rates"), the survey collects detailed information including location, food service, age categories of children served, hours and shifts, and quality indicators. Food service, age categories served, evening and overnight shifts, and quality questions refer to the respondent's entire operation. Detailed shift information and prices are reported for the primary shift and are disaggregated by child age group (infants, 1-year-olds, toddlers, 4-5-year-olds, and a "school-age" 5-12-year-old category that is broken down further into before-and-after school care and summer care).

NCES School District Boundaries and Characteristics. The MRS and CACFP recipient lists

were merged via address geocoding on the Google Maps Platform. Each provider was placed in their school district using the National Center for Education Statistics (NCES) Education Demographic and Geographic Estimates (EDGE) school district boundaries (NCES, 2026b). We associated each provider with the child poverty rate and locale code of their school district (NCES, 2026a; SAIPE, 2026).

The data have limitations. The MRS is not a scientific sample of the provider population, and respondents are more heavily represented in suburban and non-urban areas than the CACFP-participating population. A second limitation is the absence of complete Illinois school-catchment-level maps for the HHFK era. As a result, it was not possible to create an alternative control group based on providers' counterfactual school mode eligibility, nor could we identify incorrect mode assignments prior to HHFK. Finally, provider-level demographic controls in the MRS have mostly missing values. Notably, none of these limitations compromise our D-I-D empirical approach.

3.2 Estimation Sample

We use MRS data from 2005 through 2013. Our primary sample begins with 9,865 licensed daycare home providers participating in CACFP in 2009 and 9,515 in 2011. Geocode matching identifies 6,085 and 5,868 active CACFP-participating providers in the MRS in 2009 and 2011, respectively.[7] Eliminating observations with missing school districts, locale codes, or dependent variables results in a sample of 5,455 daycare homes in 2009 and 5,188 in 2011. Of these, 1,275 providers are in "all low" mode in 2009.

To conduct the analysis, we construct a balanced MRS panel of 866 active providers who appear in both years and were in the "all low" mode in 2009. The reduction from 1,275 to 866 providers is driven almost entirely by non-appearance in the MRS rather than exits from the CACFP program. The resulting provider-year panel contains 1,732 observations (866 providers across 255 school districts), including 271 providers that switched to "school" mode (treated) and 595 that remained in "all low" mode (control). Table A1 details mode transitions between 2009 and 2011 for both the MRS-matched and population of CACFP providers.

The 2009-2011 estimation sample is extended to 2005, 2007, and 2013 to conduct parallel trends

[7] Active provides report that they currently provide care and have positive enrollments.

analyses and balance tests. 656 providers appear in all five waves, yielding a balanced panel of 3,280 observations. We conducted balancing tests by estimating the impacts of HHFK implementation on providers' predetermined 2007 outcomes; 751 unique providers meet the main sample criteria and appear in the 2007, 2009, and 2011 data.

3.3 Variables

We construct dependent variables in the following categories to measure service provision: meals and snacks, shifts, schedules, prices, and quality. Summary statistics are provided in Table A2. We also construct variables for stratifying the D-I-D analysis by child poverty and rurality of providers' locations.

Meals and snacks. The MRS indicates whether the provider offers a breakfast, lunch, dinner, a.m. snack, or p.m. snack. We code each type of meal and snack as a binary variable.[8]

Shift Pattern and Duration. Three dummy variables identify offerings of day, evening, and overnight shifts. Almost all providers in our sample report a day shift as their primary shift. Additional shifts may start later in the day, or may be part-time in the morning or afternoon, for example. Note that respondents report on the shifts they offer; they do not necessarily have children enrolled in these shifts.

The MRS reports daily opening and closing times for each shift-by-child-age group. We chose the earliest and latest times reported across groups to determine opening and closing times for each weekday. We also calculated average opening and closing times across the workweek. Opening and closing times were used to calculate weekday shift duration as the maximum duration over shift-by-child-age groups. We also constructed age-group-specific duration and shift variables for infants (6 weeks-14 months), toddlers (15-23 months), twos (24-35 months), preschoolers (36- 59 months), fives (60-71 months), and school age (5-12 years) children. The detailed variables capture such nuances as providers who offer a day shift for younger children but an evening shift for older children. We define "any shift" and "number of shifts" by age group. These variables indicate the variety and flexibility of care options for parents.

Prices (market rates). The MRS collects care prices by shift-by-child-age group. There is

[8] We also estimated specifications with binary variables for meal patterns (meal and snack combinations) but found that aggregation obscured the effects of HHFK.

measurement error in these rates because over time, interviewers have increasingly encouraged providers to report official reimbursement rates from the state voucher program. We only consider rates reported for full-time shifts, as few providers offer part-time shifts. We use reported daily rates for weekdays and impute from hourly- and weekly-based responses as needed.

Quality. While state quality rating systems were nascent during the sample period, some providers obtained accreditation from a recognized authority, signaling quality of care.[9] We create indicators for whether the provider was accredited by a national organization, a state organization, and either. We also use total vacancies (the difference between desired and actual enrollment) as a quality proxy under the assumption that low-quality providers have more trouble sustaining enrollments.

Poverty Rate and Rurality. We measure local poverty at the census block level using the district-level share of children aged 5 to 17 living at or below the poverty line, obtained from the Small Area Income and Poverty Estimates (SAIPE, 2026). The stratifying variable indicates whether this rate is above or below the sample median child poverty rate (10%). We measure whether the provider lives in a rural area using NCES locale codes, where non-urban includes City, Suburban, or Town locales (NCES, 2026a).

4 Empirical Strategy

Providers eligible for different reimbursement rates may have different characteristics or face different market demands, making them poor comparison groups.[10] Further, the Tier I "categorical" mode and the Tier II "all high" mode—both resulting in the highest reimbursement levels– are endogenous, as they result from choices to participate in a public safety net program or to means-test parents. The use of school mode as the treatment avoids such threats to identification by exploiting changes in Tier I eligibility induced by HHFK's loosening of school mode criteria and mandated redeterminations of provider status to school mode. The maintained assumption is that the natural experiment of the HHFK Act is an as-good-as-random re-assignment of treated providers from the low to high reimbursement regime (Tier II to Tier I) via exogenous changes to school-mode

[9] The national accrediting organizations reported in the data are CDA/CCP, NAA, NAC, NECPA, NAFCC, NCCA, and NAEYC. The Illinois accrediting organizations are Gateways (ECE Level 1 Credential), Gateways Scholarship Participant, Great START, IDC, Illinois Directors Credential, and "other".

[10] For instance, providers in the treatment group may be more likely located in urban areas with concentrated poverty. If demands for childcare services are higher in urban areas, these providers could have both higher likelihoods of participating in Tier I and offer longer shift durations.

assignment.

The DID framework compares the outcomes of treated providers who switch from lowest to highest reimbursements via attaining school mode to those of providers who continue to receive the lowest possible reimbursements after HHFK. We apply the following D-I-D model to the sample of providers initially in "all low" mode in 2009 who continue to participate in CACFP in 2011:

$$Y_{i,s,t} = \alpha + \beta \cdot \text{High reimbursement}_{i,s,t} + \delta_i + \delta_t + \epsilon_{i,s,t} \quad (1)$$

where $Y_{i,s,t}$ is an outcome (e.g., meal and/or snack servings, operating hours) for daycare home provider i living in school-district s in year t. High reimbursement$_{i,s,t}$ equals one if the provider switches from low to high reimbursement by entering school mode, zero otherwise. We include individual (δ_i) and year fixed effects (δ_t). β is the effect of moving from the lowest to highest CACFP food reimbursement schedule. Standard errors are clustered at the school-district level to allow for unobserved correlation across providers' outcomes within each school-district.[11]

Findings for parallel trends and balance analyses strongly support the D-I-D framework. Figure 1 shows the parallel trends analyses verifying the identification assumptions. Prior to HHFK, annual averages of the five dependent variables (those with significant treatment estimates) exhibit parallel trends for providers in the treatment and control groups. After the HHFK Act, daycare home providers in the treatment group, but not in the control group, are less likely to provide an afternoon snack and more likely to provide dinner, and to offer a greater variety of shifts, especially evening shifts. Shift duration is also longer for the treatment group relative to the control group post-HHFK.

We also reject that findings are driven by selection into treatment using balance tests on predetermined (pre-HHFK, 2007) outcomes across the treatment and controls. Significant relationships indicate failure to reject selection. The estimated effects of CACFP benefit expansion did not differ significantly from zero for any of the predetermined outcomes (see Table A3).

[11] Although the policy variation is at the school catchment level, school catchment boundary data across Illinois are not available. School districts therefore represent the most disaggregated geographic unit with available boundary information. Moreover, clustering standard errors at a more aggregate school district level provides a more conservative inference.

5 Major Findings

We present findings on the impacts of accessing higher CACFP reimbursements on daycare homes' meal and snack offerings, general shift patterns, shift patterns for specific ages, and prices. We briefly discuss findings on quality, which are reported in an electronic appendix.

Meal and Snack Offerings. Food service is predicted to increase in response to a subsidy through the own-price effect. We fail to find significant effects of reimbursement increases on the likelihood of offering a morning snack, breakfast, or lunch (Table 1, panel A). An increase in reimbursements from the lowest to highest levels causes a 5.0%-point increase in the probability of offering dinner, a large increase of 28.9% above the mean. A higher reimbursement level marginally decreases the probability of providing afternoon snacks by a modest 1.6%-points (1.63% above the mean). Thus, the increased availability of dinner is not meaningfully offset by changes in other food offerings.[12]

Shift Patterns. Subsidies to food costs increase the profitability of longer-duration and later-hours care. Operating durations and shifts are complementary with food in general, while state regulations mandate complementarity.[13] Since the highest CACFP reimbursement for any serving is for dinner, this could be the highest-margin meal, making it profitable to offer an evening shift to a child not in attendance the rest of the day. Given these considerations, we predict that providers experiencing an increase in reimbursements serve more food in conjunction with schedule changes that lengthen the day and/or offer a new 'stand-alone' service for families.

Table 1 presents the effects of higher reimbursements on shift patterns. Findings in the first three columns indicate that providers who experience a move from the lowest to highest CACFP reimbursements due to HHFK were 5.5%-points more likely to offer an evening shift, a very large relative change of 56.1% above the mean. We fail to find significant effects on day and overnight shifts. The remaining 4 columns present evidence on the numbers of shifts offered. An increase to the highest reimbursement level adds a small-in-magnitude but precisely estimated 0.064 shifts, a relative increase of 5.60%. The findings on shifts align with earlier findings of large increases in dinner offerings, consistent with food and care schedule complementarity.

[12] Note that children may be attending at different times, with some being offered dinner and some not.

[13] In Illinois children in care for more than 4 hours must receive from one-third to two-thirds of their daily food needs while in care, depending on age and hours in care. For providers offering evening care (6 p.m. or later), "An evening meal that meets nutritional requirements shall be served at a regular time each evening and shall be available to children who may arrive without having first eaten (Ill. Admin. Code tit. 89, § 406.23)."

Shift Patterns by Age. Reimbursement levels may impact the age groups of children served by the provider. While most meal reimbursements double under the treatment, infant formula reimbursement more than doubles, increasing the relative profitability of infant care. Second, during the school year, school-aged children spend fairly short periods in before-and-after-school care. Providing meals and snacks to school-age children means that the marginal cost of an hour of care is relatively high. Reduced meal costs could induce considerable savings in the marginal cost of caring for school-age children, encouraging before-and-after school care and school-age summer care.

Table 2 presents findings on whether a shift is offered and the number of shifts offered, by age group and type of school-age care. There is weak evidence that higher reimbursements increase the likelihood of offering any school-age care but increase the number (variety) of summer shifts by 0.134, a relative increase of 16.1%. Other coefficients are small in magnitude and not estimated to differ from zero. Due to the already-high shift offerings by age groups (95% of providers offer a shift for infants through age 5, while over 90% offer before and after school shifts), it is not surprising that the hypothesis of a positive effect on the number of shifts is rejected.

With the exception of infants and toddlers, a higher reimbursement marginally increases the number of shifts offered for most age groups not yet in school, with marginal significance for twos and fives and a significant effect on preschoolers (panel B). The magnitudes of all estimated coefficients are small relative to the mean. The notable exception is for school-age children; the number of shifts available to them increase by 0.134, or 16.1% over the mean. Taken together with findings on any shift, this suggests that reimbursement increases lead to greater variety of offerings in the form of summer shifts.

An important question is whether providers are able to extend their operating hours later into the day to satisfy demand for late-day care that they were formerly unable to meet. If so, some families may gain evening care while others lose access to care earlier in the day. We estimated effects of highest reimbursements on open and closing times and total open hours for each weekday, averages over the weekdays, and the mean effect size over the weekdays. effects on opening times are not estimated to differ significantly from zero, while the estimate of closing time indicates that the movement to highest reimbursements increases average weekday shift duration by 17.04

(=0.284*60) minutes at the end of the day.[14]

Rates Charged. Low entry barriers are consistent with a highly competitive home daycare market, arguing for some pass-through of reimbursements. Potentially obscuring this, offerings of increased or new services means providers may be able to charge more.[15] As noted, there are also potential inaccuracies in the price data that may obscure effects on prices.

Table 3 presents estimates of a reimbursement change on daily market rates for different age groups. The sample is slightly reduced from the previous one due to missing data. A higher reimbursement marginally increases rates charged to parents of two-year-olds as well as before- and after-school care of school-age children by 1.28 and 3.22, respectively. Effects for infants and one-year-olds are similar to those for two-year-olds, although they are not estimated to differ significantly from zero.

Quality. Finally, we examined whether higher CACFP reimbursements affect provider accreditation and vacancies. None of the estimates differ significantly from zero at standard confidence levels (Table A5).

5.1 Heterogeneous Effects by Poverty and Rurality

We tested for differential responses by estimating the D-I-D specification in samples stratified by rural location or above-median child poverty. Findings from the poverty stratification indicate whether the effects of CACFP on services are disproportionately reaching more economically vulnerable households. In the case of rurality, wide variation in population density and area characteristics across the state entail substantial differences between labor and childcare markets in rural and non-rural areas. Rural daycare home providers also report higher costs of acquiring and purchasing food, suggesting that fixed changes in reimbursements may have less impact at the margin (Speirs et al., 2020).

Findings are reported in Table 4. In all cases, the hypothesis that the effects differ across areas of lower and higher child poverty fail to be accepted at the 95% confidence level. In contrast, most point estimates for rural providers are small and none are estimated to differ significantly from zero

[14] We also estimated schedules for each day of the week and estimated mean effect sizes, which account for multiple hypotheses (Kling et al., 2007). These findings are reported in Table A4.

[15] This is an important distinction between CACFP and SLBP. Under SLBP, meals are often free, but there is no guarantee that the full savings from CACFP are passed through to parents.

at the 90% confidence level. In contrast, the overall findings on dinner and duration are estimated to be driven by non-rural providers.

6 Discussion and Conclusion

This study uses unique administrative data and a sharp, exogenous change in the generosity of CACFP reimbursements to estimate effects of CACP on food and other services provided by daycare homes, prices, and quality. We found that the share of providers offering dinner increased by 5.0%-points; closing times were extended by 17.04 minutes; the incidence of evening shifts increased by 5.5%-points; and the availability of summer care for school-age children increased by 13.4%-points. We failed to find evidence of lower prices for parents or improvements in quality indicators.

Considering the findings as a whole, it appears that the changes to CACFP under HHFK enabled providers to profitably extend care later in the day and into the evening due to a reduction in the cost of serving dinner. Our findings that reimbursements also encourage provision of school-age summer care are consistent with increased profitability of additional care offerings when meals are subsidized, as older children consume more food.

There are some limitations to our analysis. The survey questions indicate that a service is offered, but it may not be actively provided. Information collected in the Market Rate Survey is used to inform parents about local providers, and our evidence is consistent with a willingness to offer more services in response to higher reimbursements. Due to the nature of the survey, it is not possible to discern between increases in service capacity versus supply. Similarly, we lack information on the number of meals and snacks that are actually served. Finally, as mentioned above, findings on prices may be biased towards zero because of irregularities in the survey process.

Due to the nature of our identification strategy, which is wed to data on active providers, we are not able to estimate extensive margin effects of CACFP. It is important to note that our findings of increased services are set against a backdrop of long-term decline in the daycare home market. Our administrative data sources indicate that this is driven by a failure to attract new entrants as incumbent providers age out. While it is possible that CACFP has slowed the exodus of incumbent providers, we are not aware of any evidence on this issue.

Policymakers should consider potential interactions of nutrition policies with other policy goals for children's development. Effects of CACFP policy on operating hours and evening shifts have important implications for families and for children's development. On the one hand, greater availability and flexibility of child care services improves families' economic well-being by enabling parents (especially mothers) to work full-time schedules and nonstandard hours. On the other hand, our analysis indicates that subsidizing food potentially increases the amount of time children spend in daycare homes overall, including more late-day and evening care. There is some evidence of increased behavioral problems with duration of care days, but less so at daycare homes than centers (Loeb et al., 2007). Notably, little is known about the developmental implications of evening care, an important area for future research.

References

Bacon, Kassandra A, Danielle L Lee, Reka Vasicsek, Celeste Felix, Samantha Kay-Daleiden Marshall, Elyse Homel Vitale, Susana L Matias, and Lorrene D Ritchie, "Provider, Sponsor and Family Perceptions of CACFP Participation and COVID-19 Reimbursement Increases," *Public Health Nutrition*, 2025, pp. 1–24.

Bitler, Marianne P and Arian Seifoddini, "Health impacts of food assistance: evidence from the United States," *Annual Review of Resource Economics*, 2019, *11*, 261–287.

Blau, David, "Child Care Subsidy Programs," in Robert A. Moffitt, ed., *Means-Tested Transfer Programs in the United States*, University of Chicago Press, 2003, pp. 443–516.

Blau, David M, "Do child care regulations affect the child care and labor markets?," *Journal of Policy Analysis and Management*, 2003, *22* (3), 443–465.

Currie, Janet, "4. US Food and Nutrition Programs," in "Means-tested transfer programs in the United States," University of Chicago Press, 2007, pp. 199–290.

_ **and Douglas Almond**, "Human capital development before age five," in "Handbook of labor economics," Vol. 4, Elsevier, 2011, pp. 1315–1486.

_ **and Firouz Gahvari**, "Transfers in cash and in-kind: Theory meets the data," *Journal of Economic Literature*, 2008, *46* (2), 333–83.

David, Marker, Mary Dingwall, David Stinchcomb, Hyunshik Lee, and Frederic Glantz, "Child and Adult Care Food Program (CACFP): Assessment of Sponsor Tiering Determinations 2011," *U.S. Department of Agriculture, Food and Nutrition Service, Office of Research and Analysis. Project Officer, Fred Lesnett, Alexandria, VA: December 2012*, 2012.

Dev, Dipti A, Brent A McBride, Katherine E Speirs, Sharon M Donovan, and Hyun Keun Cho, "Predictors of Head Start and child-care providers' healthful and controlling feeding practices with children aged 2 to 5 years," *Journal of the Academy of Nutrition and Dietetics*, 2014, *114* (9), 1396–1403.

Erinosho, Temitope, Amber Vaughn, Derek Hales, Stephanie Mazzucca, Ziya Gizlice, and Dianne Ward, "Participation in the Child and Adult Care Food Program is associated with healthier nutrition environments at family child care homes in Mississippi," *Journal of nutrition education and behavior*, 2018, *50* (5), 441–450.

_ , _ , _ , _ , _ , **Cayla Treadway, Alexandra Kelly, and Dianne Ward**, "The quality of nutrition and physical activity environments of child-care centers across three states in the southern US," *Preventive medicine*, 2018, *113*, 95–101.

Erinosho, Temitope O, Sarah C Ball, Phillip P Hanson, Amber E Vaughn, and Dianne Stanton Ward, "Assessing foods offered to children at child-care centers using the Healthy Eating Index-2005," *Journal of the Academy of Nutrition and Dietetics*, 2013, *113* (8), 1084–1089.

Gordanier, John, Orgul Ozturk, Breyon Williams, and Crystal Zhan, "Free lunch for all! the effect of the community eligibility provision on academic outcomes," *Economics of Education Review*, 2020, *77*, 101999.

Han, Wen-Jui, "Nonstandard work schedules and child care decisions: Evidence from the NICHD study of early child care," *Early Childhood Research Quarterly*, 2004, *19* (2), 231–256.

Heflin, Colleen, Irma Arteaga, and Sara Gable, "The child and adult care food program and food insecurity," *Social Service Review*, 2015, *89* (1), 77–98.

Herbst, Chris M, "The impact of quality rating and improvement systems on families' child care choices and the supply of child care labor," *Labour Economics*, 2018, *54*, 172–190.

_ , "Child care in the United States: Markets, policy, and evidence," *Journal of Policy Analysis and Management*, 2023, *42* (1), 255–304.

Hotz, V Joseph and Mo Xiao, "The impact of regulations on the supply and quality of care in child care markets," *American Economic Review*, 2011, *101* (5), 1775–1805.

Hoynes, Hilary and Diane Whitmore Schanzenbach, "US Food and Nutrition Programs," in Robert A. Moffitt, ed., *Economics of Means-Tested Transfer Programs in the United States, Volume 1*, University of Chicago Press, 2016.

_ , _ , and Douglas Almond, "Long-run impacts of childhood access to the safety net," *American Economic Review*, 2016, *106* (4), 903–34.

Kling, Jeffrey R, Jeffrey B Liebman, and Lawrence F Katz, "Experimental analysis of neighborhood effects," *Econometrica*, 2007, *75* (1), 83–119.

Korenman, Sanders, Kristin S Abner, Robert Kaestner, and Rachel A Gordon, "The Child and Adult Care Food Program and the nutrition of preschoolers," *Early childhood research quarterly*, 2013, *28* (2), 325–336.

Liu, Sherry T, Cheryl L Graffagino, Kendall A Leser, Autumn L Trombetta, and Phyllis L Pirie, "Obesity prevention practices and policies in child care settings enrolled and not enrolled in the Child and Adult Care Food Program," *Maternal and child health journal*, 2016, *20* (9), 1933–1939.

Loeb, Susanna, Margaret Bridges, Daphna Bassok, Bruce Fuller, and Russell W Rumberger, "How much is too much? The influence of preschool centers on children's social and cognitive development," *Economics of Education review*, 2007, *26* (1), 52–66.

Marcus, Michelle and Katherine G Yewell, "The effect of free school meals on household food purchases: evidence from the community eligibility provision," *Journal of Health Economics*, 2022, *84*, 102646.

Martorell, Reynaldo, "Improved nutrition in the first 1000 days and adult human capital and health," *American Journal of Human Biology*, 2017, *29* (2), e22952.

NCES, "NCES Locale Classifications and Criteria," https://nces.ed.gov/programs/edge/docs/LOCALE_CLASSIFICATIONS.pdf, 2026.

_ , "NCES School District Boundaries," https://nces.ed.gov/programs/edge/Geographic/DistrictBoundaries, 2026.

Pilarz, Alejandra Ros, Ying-Chun Lin, and Katherine A Magnuson, "Do parental work hours and nonstandard schedules explain income-based gaps in center-based early care and education participation?," *Social Service Review*, 2019, *93* (1), 55–95.

Powers, Elizabeth, Joellyn Whitehead, and Kevin Anderson, "Market Rate Survey of Licensed Child Care Programs in Illinois Fiscal Year 2018," *prepared for the Illinois Department of Human Services, https://perma.cc/A2WF-JQLG*, 2018.

Rabbitt, Matthew P, Laura J Hales, Michael P Burke, and Alisha Coleman-Jensen, "Household food security in the United States in 2022," *(Report No. ERR-325), U.S. Department of Agriculture, Economic Research Service*, 2023.

Ritchie, Lorrene D, Maria Boyle, Kumar Chandran, Phil Spector, Shannon E Whaley, Paula James, Sarah Samuels, Ken Hecht, and Patricia Crawford, "Participation in the child and adult care food program is associated with more nutritious foods and beverages in child care," *Childhood Obesity (Formerly Obesity and Weight Management)*, 2012, *8* (3), 224–229.

Ruffini, Krista, "Universal access to free school meals and student achievement: Evidence from the Community Eligibility Provision," *Journal of Human Resources*, 2022, *57* (3), 776–820.

_ , Orgül Öztürk, and Pelin Pekgün, "In-kind government assistance and crowd-out of charitable services: Evidence from free school meals," *Journal of Public Economics*, 2025, *248*, 105391.

SAIPE, "Small Area Income and Poverty Estimates (SAIPE) Program," https://www.census.gov/programs-surveys/saipe.html, 2026.

Speirs, Katherine E, Rachel A Gordon, Elizabeth T Powers, Brenda D Koester, and Barbara H Fiese, "Licensed Family Child Care Providers' Participation in the Child and Adult Care Food Program (CACFP): Greater Benefits and Fewer Burdens in Highly Urban Areas?," *Early Education and Development*, 2020, *31* (2), 153–176.

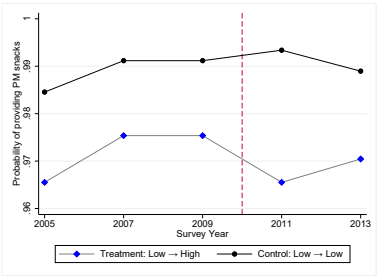
Tiehen, Laura, "The Food Assistance Landscape: Fiscal Year 2019 Annual Report," [Online]. U.S. Department of Agriculture, Economic Research Service. Economic Information Bulletin #218. Available: https://www.ers.usda.gov/publications/pub-details/?pubid=99025 2020. Accessed: 2021-07-18.

USDA, "Natonal Level Annual Summary Tables: FY 1969-2025. Child and Adult Care Food Program – Participation, Meals, and Costs," https://www.fna.usda.gov/pd/child-nutrition-tables, 2026.

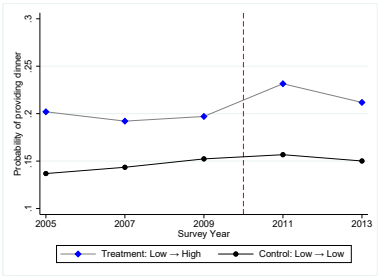
Zaltz, Daniel A, Amelie A Hecht, Russell R Pate, Brian Neelon, Jennifer R O'Neill, and Sara E Benjamin-Neelon, "Participation in the Child and Adult Care Food Program is associated with fewer barriers to serving healthier foods in early care and education," *BMC public health*, 2020, *20*, 1–9.

Figures and Tables

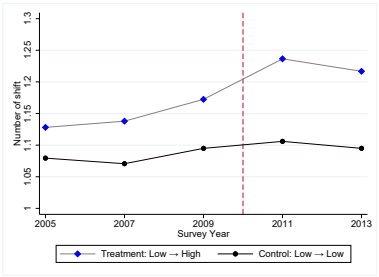
Figure 1: Parallel trends in outcomes, 2005-2013



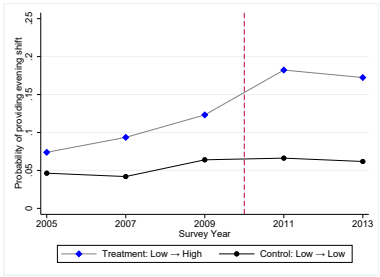
(a) PM snack



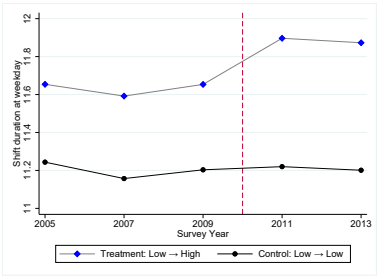
(b) Dinner



(c) Shift number



(d) Evening shift



(e) Shift duration

Notes. Figures show parallel trends for the major outcome variables, for a subsample of 656 unique daycare home providers who participate in CACFP in all low mode in 2009 and participate in either all low (low reimbursement) or school modes (high reimbursement) in 2011, and who appear in every wave of the 2005-2013 data.

Table 1: Impacts of high reimbursement on service provision

	Panel A. Meal patterns				
	AMSnack	Breakfast	Lunch	PMSnack	Dinner
	(1)	(2)	(3)	(4)	(5)
High reimbursement	0.021	-0.015	-0.004	-0.016*	0.050**
	(0.021)	(0.016)	(0.005)	(0.009)	(0.020)
Mean dep. var.	0.773	0.941	0.992	0.979	0.173
R-squared	0.908	0.792	0.923	0.717	0.881
	Panel B. Shift patterns				
	Number	Day	Evening	Overnight	Duration
	(6)	(7)	(8)	(9)	(10)
High reimbursement	0.064**	0.004	0.055**	0.009	0.284**
	(0.031)	(0.005)	(0.023)	(0.013)	(0.135)
Mean dep. var.	1.139	0.997	0.098	0.040	11.520
R-squared	0.767	0.800	0.783	0.732	0.834
Provider FE	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓
Observations	1,732	1,732	1,732	1,732	1,732

Notes. Coefficient estimates from a regression of high reimbursement on meal and shift variables, with standard errors in parentheses beneath. See Table A2 notes for a description of the sample. Panel A indicates whether any meal/snack of the given type is served by the provider. Panel B indicates the number of shifts, whether the provider offers a day, evening, or overnight shift, and the duration (in hours) the provider is open. "High reimbursement" indicates receipt of the highest subsidy level for all conforming meals/snacks served to all children in care. All regressions include individual fixed effects and year fixed effects. Standard errors clustered at the school-district level in parentheses. $***p < 0.01, **p < 0.05, *p < 0.1$.

Table 2: Impacts of high reimbursement on shift number by child age group

	Panel A. Any shift offered to age group						
	Infants	Toddlers	Twos	Preschoolers	Fives	School age (before & after school)	School age (summer)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
High reimbursement	0.010	0.003	0.000	0.011	0.009	0.003	0.100*
	(0.017)	(0.014)	(0.011)	(0.009)	(0.017)	(0.023)	(0.057)
Mean dep. var.	0.968	0.975	0.990	0.993	0.973	0.908	0.760
R-squared	0.569	0.502	0.465	0.497	0.540	0.657	0.751
	Panel B. Number of shifts offered to age group						
	Infants	Toddlers	Twos	Preschoolers	Fives	School age (before & after school)	School age (summer)
	(8)	(9)	(10)	(11)	(12)	(13)	(14)
High reimbursement	0.048	0.043	0.046*	0.052**	0.058*	0.022	0.134**
	(0.034)	(0.033)	(0.027)	(0.025)	(0.030)	(0.037)	(0.063)
Mean dep. var.	1.058	1.064	1.081	1.084	1.060	0.979	0.834
R-squared	0.739	0.736	0.729	0.742	0.713	0.706	0.764
Provider FE	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓
Observations	1,732	1,732	1,732	1,732	1,732	1,732	1,732

Notes. Coefficient estimates from a regression of high reimbursement on types of shifts defined by age and (for older children) school schedule, with standard errors in parentheses beneath. See Table A2 notes for a description of the sample. Panel A presents estimated effects on whether the provider offers any shift for a given age and/or school schedule. Panel B presents estimated effects on the number of shifts for the specified age group and/or school schedule. Age groups are Infants (6 wks - 14 mos), Toddlers (15-23 mos), Twos (24-35 mos), Preschoolers (36-59 mos), Fives (60-71 mos), and School age (6-12 yrs). "High reimbursement" indicates receipt of the highest subsidy level for all conforming meals/snacks served to all children in care. All regressions include individual fixed effects and year fixed effects. Standard errors clustered at the school-district level in parentheses. $***p < 0.01, **p < 0.05, *p < 0.1$.

Table 3: Impacts of high reimbursement on rates charged to parents by child age group

	Panel A. Daily rates						
	Infants	Toddlers	Twos	Preschoolers	Fives	School age (before & after school)	School age (summer)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
High reimbursement	1.213	1.251	1.281*	1.047	1.059	3.217*	0.828
	(0.839)	(0.771)	(0.726)	(0.686)	(0.802)	(1.657)	(1.068)
Mean dep. var.	31.760	31.598	31.574	31.044	29.783	16.958	22.461
R-squared	0.827	0.826	0.852	0.855	0.856	0.699	0.801
	Panel B. Hourly rates						
	Infants	Toddlers	Twos	Preschoolers	Fives	School age (before & after school)	School age (summer)
	(8)	(9)	(10)	(11)	(12)	(13)	(14)
High reimbursement	0.524	0.524	0.512	0.472	0.472	0.515	0.158
	(0.389)	(0.383)	(0.358)	(0.339)	(0.351)	(0.323)	(0.315)
Mean dep. var.	4.655	4.631	4.602	4.529	4.351	2.440	3.295
R-squared	0.633	0.634	0.646	0.648	0.659	0.588	0.633
Provider FE	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓
Observations	1,669	1,668	1,666	1,666	1,658	1,379	1,657

Notes. Coefficient estimates from a regression of high reimbursement on rates charged to parents, with standard errors in parentheses beneath. See Table A2 notes for a description of the sample. The dependent variables are daily (Panel A) and hourly (Panel B) rates for full-time shifts. Daily rates are reported directly by providers, and computed from hourly- or monthly-based rates when daily-based rates are not available (see narrative for details). Hourly rates are calculated as daily rates divided by weekday duration. Age groups are Infants (6 wks - 14 mos), Toddlers (15-23 mos), Twos (24-35 mos), Preschoolers (36-59 mos), Fives (60-71 mos), and School age (6-12 yrs). "High reimbursement" indicates receipt of the highest subsidy level for all conforming meals/snacks served to all children in care. All regressions include individual fixed effects and year fixed effects. Standard errors clustered at the school-district level in parentheses. $***p < 0.01, **p < 0.05, *p < 0.1$.

Table 4: Heterogeneity effects in service provision

	Child poverty		Rurality	
	Above	Below	Non-Rural	Rural
	(1)	(2)	(3)	(4)
AM snacks	0.025	0.050	0.019	-0.040
	(0.027)	(0.056)	(0.020)	(0.095)
Breakfast	-0.004	-0.017	-0.013	0.014
	(0.019)	(0.012)	(0.018)	(0.063)
PM snacks	-0.018	-0.005	-0.015	-0.012
	(0.014)	(0.005)	(0.010)	(0.013)
Dinner	0.050**	0.080	0.061***	-0.012
	(0.022)	(0.062)	(0.023)	(0.018)
Number of shifts	0.065	0.042	0.061*	0.045
	(0.040)	(0.097)	(0.036)	(0.059)
Evening shift	0.058**	0.042	0.053**	0.045
	(0.026)	(0.096)	(0.026)	(0.059)
Overnight shift	0.007	0.000	0.007	0.000
	(0.018)	(0.007)	(0.016)	(0.000)
Average duration	0.303*	0.052	0.298*	-0.003
	(0.161)	(0.478)	(0.161)	(0.126)
Observations	866	866	1,319	413

Notes. Coefficient estimates from a regression of high reimbursement on meal and shift variables, with standard errors in parentheses beneath. See Table A2 notes for a description of the sample. "Lunch" and "Day shift" are omitted in subgroups as these outcomes exhibit no variation. "High reimbursement" indicates receipt of the highest subsidy level for all conforming meals/snacks served to all children in care. Columns (1) and (2) report estimates for school districts with child poverty rates above and below the median, respectively, where child poverty is measured as the share of children aged 5 to 17 in poverty. Columns (3) and (4) report estimates for providers located in non-rural and rural school districts, respectively. All regressions include individual fixed effects and year fixed effects. Standard errors clustered at the school-district level in parentheses. $***p < 0.01, **p < 0.05, *p < 0.1$.

Online Appendix to:
"The Impact of Federal Nutrition Support for Infants and Young Children on Home Daycare Services"

Elizabeth T. Powers **Jian Zou**

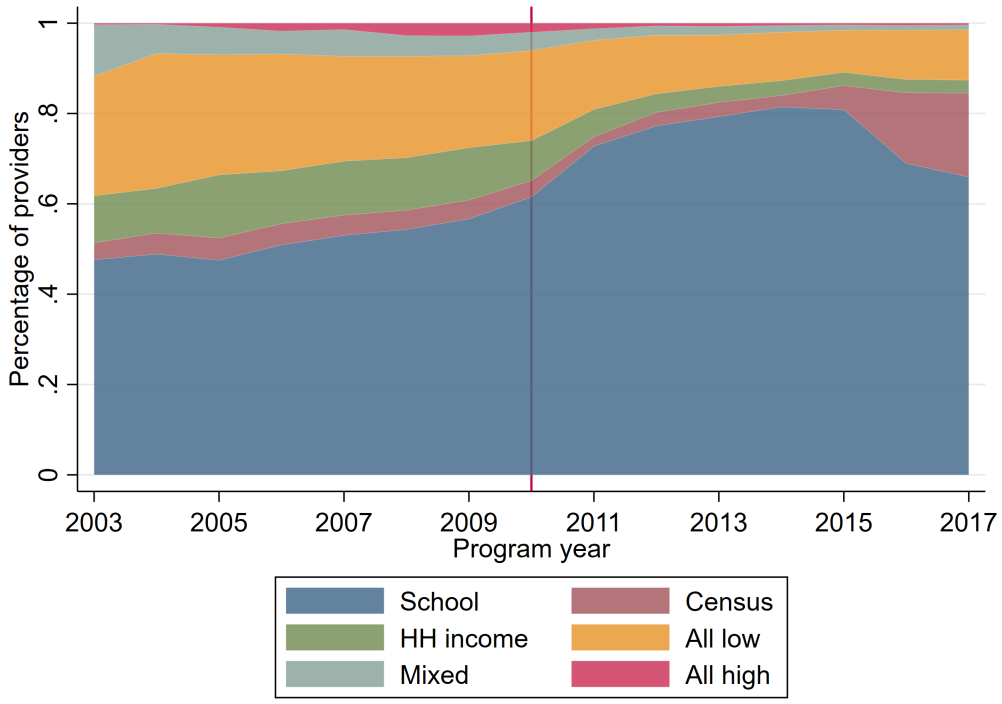
August 2026

Figure A1: CACFP eligibility determination rules and reimbursement rates

Level of reimbursement	Rate
Tier I **Geographic eligibility**: Provider located in low-income areas: a. School boundary area: 50% plus enrolled children are eligible for free or reduced-price lunch (FRPL).[1] b. Census block group: 50% plus children aged 12 or below are in households with income below 185% federal poverty level (FPL). **Provider income eligibility**: Provider has low-income, as indicated by either: a. Income eligibility: Provider's income is below 185% of FPL. b. Categorical eligibility: Provider is already determined as below 185% of FPL by other programs (e.g., SNAP, FDPIR, or TANF).[2]	**High reimbursement**: Breakfast \$1.24 Lunch and Supper \$2.32 Snack \$0.69 **Low reimbursement**: Breakfast \$0.45 Lunch and Supper \$1.40 Snack \$0.19
Tier II All others, but conforming meals served to specific children are reimbursed at the higher rate if: a. Child's family income is below 185% of FPL. b. Child is already determined as below 185% of FPL by other programs (e.g., SNAP, FDPIR, or TANF).[2]	

Notes. CACFP eligibility determination rules and reimbursement rates example for licensed daycare home providers in Illinois. Rate examples are from the 2011 state fiscal year (July 1, 2011 - June 20, 2012). The description of determination rules corresponds to the period of the study data (2009 & 2011).
[1]For the school boundary area: the school area was changed from any *elementary* schools in 2009 to any public *(elementary, middle, or high)* schools in 2011 due to the HHFK Act.
[2] SNAP = "Supplemental Nutrition Assistance Program"; FDPIR = "Food Distribution Program on Indian Reservations"; TANF = "Temporary Assistance to Needy Families". Individual States may designate additional means-tested programs for categorical eligibility.

Figure A2: Illinois CACFP participation by mode



Notes. The figure shows the daycare home providers' CACFP participation by mode in Illinois over time period 2003-2017, using the population of CACFP recipients obtained from the Illinois State Board of Education.

Table A1: Mode matrix

A. Matched sample (N=4,179)

		2011					
		School	Census	HH income	All high	Mixed	All low
2009	School	2,203	1	11	0	1	8
	Census	86	74	0	0	0	3
	HH income	249	5	176	1	11	46
	All high	41	0	5	24	17	37
	Mixed	93	1	10	15	86	40
	All low	271	4	26	9	28	598

B. Full sample (N=7,347)

		2011					
		School	Census	HH income	All high	Mixed	All low
2009	School	4,173	4	24	0	5	29
	Census	134	134	2	0	2	5
	HH income	422	10	323	2	15	94
	All high	56	1	8	37	23	53
	Mixed	139	4	16	31	119	60
	All low	405	8	51	17	43	898

Notes. The table shows the CACFP participation mode transition matrix from 2009 to 2011. Panel A uses the provider sample matched to the MRS, while Panel B uses the full samples. Both of them are in the 2009-2011 two-year panel. The sample size of matched sample (N=4,179) in the 2009-2011 panel is smaller than that of matched sample in either year (N=5,455 for 2009 and N= 5,188 for 2011) due to sample attrition across the two years.

Table A2: Summary statistics

	Mean	SD	Min	Max	N
A. Meal patterns					
AM snack	0.773	0.419	0	1	1,732
Breakfast	0.941	0.235	0	1	1,732
Lunch	0.992	0.086	0	1	1,732
PM snack	0.979	0.143	0	1	1,732
Dinner	0.173	0.379	0	1	1,732
B. Shift patterns and duration					
Shift number	1.139	0.432	1	3	1,732
Day shift	0.997	0.054	0	1	1,732
Evening shift	0.098	0.298	0	1	1,732
Overnight shift	0.040	0.197	0	1	1,732
Duration at weekday (hours)	11.52	2.424	8	24	1,732
Opening time at weekday	6.628	0.865	0	18.50	1,732
Closing time at weekday	17.95	1.845	6	24.50	1,732
C. Daily rates (by age group)					
Infants	31.76	14.49	0	137.4	1,669
Toddlers	31.60	13.79	0	137.4	1,668
Twos	31.57	14.51	0	207	1,666
Preschoolers	31.04	14.25	0	207	1,666
Fives	29.78	14.89	0	207	1,666
School age (before & after school)	16.96	18.50	0	207	1,379
School age (summer)	22.46	16.16	0	126	1,657
D. Capacity					
Accreditation	0.085	0.279	0	1	1,732
Accreditation (Illinois)	0.050	0.218	0	1	1,732
Accreditation (national)	0.040	0.197	0	1	1,732
Vacancies	1.495	1.984	0	14	1,732
E. Poverty Rate and Rurality					
Child poverty rate	0.121	0.066	0.028	0.309	866
City	0.207	0.405	0	1	866
Suburban	0.356	0.449	0	1	866
Town	0.201	0.401	0	1	866
Rural	0.237	0.425	0	1	866

Note: Table presents summary statistics of the estimation samples. The estimation sample consists of 1,732 licensed daycare home providers (866 unique providers across 255 Illinois school districts) who participate in CACFP in all low mode in 2009 and participate in either all low (low reimbursement) or school modes (high reimbursement) in 2011. Samples for daily rates are smaller due to missing observations. Age groups are Infants (6 wks - 14 mos), Toddlers (15-23 mos), Twos (24-35 mos), Preschoolers (36-59 mos), Fives (60-71 mos), and School age (6-12 yrs). Child poverty rate are computed as the baseline number of children in poverty over total children aged 5 to 17, while rurality categories are defined by NCES locale codes for the providers' school district in 2009 (see narrative for details).

Table A3: Balancing tests of high reimbursement on service provision using 2007 and 2009 data

	Panel A. Meal patterns				
	AMSnack	Breakfast	Lunch	PMSnack	Dinner
	(1)	(2)	(3)	(4)	(5)
High reimbursement	0.021	0.007	-0.006	0.002	-0.012
	(0.026)	(0.015)	(0.012)	(0.010)	(0.017)
Mean dep. var.	0.773	0.941	0.992	0.979	0.172
R-squared	0.871	0.742	0.597	0.715	0.809
	Panel B. Shift patterns				
	Day	Evening	Overnight	#Shift	Duration
	(6)	(7)	(8)	(9)	(10)
High reimbursement	0.004	-0.000	0.005	0.005	0.112
	(0.004)	(0.027)	(0.016)	(0.029)	(0.200)
Mean dep. var.	0.997	0.098	0.040	1.139	11.535
R-squared	0.500	0.704	0.711	0.774	0.733
Provider FE	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓
Observations	1,502	1,502	1,502	1,502	1,502

Notes. The estimation sample consists of daycare home providers who participate in CACFP in all low mode in 2009 and participate in either all low (low reimbursement) or school modes (high reimbursement) in 2011. Panel A indicates whether any meal/snack of the given type is served by the provider. Panel B indicates the number of shifts, whether the provider offers a day, evening, or overnight shift, and the duration (in hours) the provider is open. Dependent variables in the baseline are from MRS 2009, while dependent variables in the endline are from MRS 2007, the predetermined variables of providers. "High reimbursement" indicates receipt of the highest subsidy level for all conforming meals/snacks served to all children in care. All regressions include individual fixed effects and year fixed effects. Standard errors clustered at the school-district level in parentheses. $***p < 0.01, **p < 0.05, *p < 0.1$.

Table A4: Impacts of high reimbursement on shift schedule by day of the week

	Panel A. Open hours						
	Monday	Tuesday	Wednesday	Thursday	Friday	Average	MES
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
High reimbursement	0.261*	0.291**	0.291**	0.291**	0.288**	0.284**	0.124***
	(0.139)	(0.135)	(0.135)	(0.135)	(0.135)	(0.135)	(0.042)
Mean dep. var.	11.529	11.518	11.518	11.518	11.518	11.520	–
R-squared	0.822	0.835	0.835	0.835	0.835	0.834	–
	Panel B. Opening time						
	Monday	Tuesday	Wednesday	Thursday	Friday	Avarage	MES
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
High reimbursement	-0.063	-0.067	-0.067	-0.067	-0.067	-0.066	-0.083
	(0.095)	(0.096)	(0.096)	(0.096)	(0.096)	(0.096)	(0.086)
Mean dep. var.	6.628	6.629	6.629	6.629	6.629	6.628	–
R-squared	0.719	0.717	0.717	0.717	0.717	0.718	–
	Panel C. Closing time						
	Monday	Tuesday	Wednesday	Thursday	Friday	Avarage	MES
	(8)	(9)	(10)	(11)	(12)	(13)	(14)
High reimbursement	0.231*	0.217*	0.216*	0.216*	0.214*	0.219*	0.127**
	(0.129)	(0.125)	(0.125)	(0.125)	(0.125)	(0.125)	(0.051)
Mean dep. var.	17.949	17.954	17.953	17.953	17.954	17.953	–
R-squared	0.781	0.805	0.805	0.805	0.804	0.804	–
Provider FE	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓
Observations	1,732	1,732	1,732	1,732	1,732	1,732	1,732

Notes. Coefficient estimates from a regression of high reimbursement on characteristics of shifts, with standard errors in parentheses beneath. See Table A2 notes for a description of the sample. Panel A contains findings for the duration (in hours) the provider is open by day and the average across weekdays. Panels B and C contain the analogous findings for opening and closing times, respectively. The final column contains estimates of the mean effect size (MES; Kling et al. (2007). "High reimbursement" indicates receipt of the highest subsidy level for all conforming meals/snacks served to all children in care. All regressions include individual fixed effects and year fixed effects. Standard errors clustered at the school-district level in parentheses. $***p < 0.01, **p < 0.05, *p < 0.1$.

Table A5: Impacts of high reimbursement on service quality

	Panel A. Service quality			
	Accreditation	Accreditation (Illinois)	Accreditation (national)	Vacancies
	(1)	(2)	(3)	(4)
High reimbursement	0.017	0.012	0.004	-0.020
	(0.019)	(0.018)	(0.016)	(0.229)
Mean dep. var.	0.085	0.050	0.040	1.495
R-squared	0.800	0.844	0.732	0.450
Observations	1,732	1,732	1,732	1,732
Provider FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓

Notes. Coefficient estimates from a regression of high reimbursement on service quality and capacity, with standard errors in parentheses beneath. The dependent variables use accreditation and vacancies as proxies for service quality. The first three columns indicate whether the provider holds any accreditation, Illinois accreditation, or national accreditation, respectively, while the last column reports the total number of vacancies. "High reimbursement" indicates receipt of the highest subsidy level for all conforming meals/snacks served to all children in care. All regressions include individual fixed effects and year fixed effects. Standard errors clustered at the school-district level in parentheses. $***p < 0.01, **p < 0.05, *p < 0.1$.