Carbuccia, Chevallier, Heim, Panico & Barone

Fostering access to early childcare: a Randomized controlled trial

Last edited: 27/09/2022

Abstract

This trial assesses the impact of an intervention aimed at improving demand for and access to early childcare services (ECS) in France. The literature reports that attendance of high-quality ECS has positive effects both on women's employment and on children's development and school achievement, more so for children of low socioeconomic status (SES) families. However, these children are strongly underrepresented in ECS.

We hypothesize that structural barriers relating to the accessibility of ECS (rationing of places and criteria of access) and to their costs for the families only partly explain the lower demand for and access of low-SES families. Relying on a qualitative preparatory study, we expect that a lack of information about these services as well as administrative barriers in the application process contribute to unequal access. Therefore, we designed an intervention targeting pregnant mothers and delivering information and support about the availability, costs, eligibility criteria of ECS and the related application procedures. We will contact mothers during their visits to maternity wards of hospitals in the metropolitan area of Paris (Ile de France) and administer a baseline questionnaire to collect information on socio-demographic characteristics, knowledge of ECS, and intentions to use them. After this interview, they will be randomly assigned to three experimental arms (control, information-only treatment, information plus administrative support treatment). One year later we will administer a phone interview on actual recourse and two years later a follow-up to measure long-term impacts on children's development.

Treatment design

1-Information-only treatment (T1) (October-December 2022): this involves two clusters of contents

1a) Cluster 1: information aimed at helping families to identify a type of ECS that fits well with their preferences and constraints. Treated families will receive a text message providing access to a short video presenting information on the availability and characteristics of different types of ECS in France and how they may correspond to the different preferences and needs of families. One text message reminder will be sent to encourage mothers to watch this video. In the following days, a second text message with related reminders will give access to a second short video on eligibility to and costs of ECS in France and a third video will present detailed information on a specific type of childcare service (*halte-garderies*) which may be particularly well-suited to low-SES families (less intensive care, less restrictive criteria of access, easier application procedures and more flexible time schedules).

1b) Cluster 2: information aimed at understanding the application process. Like for 1a), this involves sending text messages and related reminders with links to two videos presenting information on the calendar of applications, the procedures to apply, and tips to maximize the chances of success, such as applying to multiple ECS. The content of the first video of this cluster will vary depending on the district where families live, as each one has a specific application process.

Reminders: Reminders on Cluster 2 will be sent by text messages after child delivery (February 2023) in order to maximize applications for the June commission, where most of the slots get allocated. They will also be sent generic reminders to apply shortly before the deadline for the 2023 applications to ECS (April 2023).

2- Information plus administrative support treatment (T2) (February-April 2022):

This involves a phone call with parents to help them to fill up the forms, as well as personalized application reminders. Parents will receive the same information as T1.

Outcomes

Primary outcome: The primary outcome is a dichotomous variable indicating whether parents applied for a slot in at least one ECS. We are interested in both the main effect and the effect on low-SES parents.

Explanation: in public debates, the underrepresentation of low-SES families is often attributed to a preference for informal childcare arrangements. Our intervention primarily aims at showing whether there is an unmet demand for ECS relating to a lack of information and administrative support in the application process.

Secondary outcomes: three dichotomous variables indicating whether families obtained a place in ECS, whether this is a full-time or a part-time attendance and whether this starts in September 2023 or later. Two continuous variables will measure i) the date at which parents applied, as it may impact their likelihood to get a place, and ii) the number of applications submitted. If the intervention impacts childcare attendance, two additional outcomes will be i) a measure of children's development, and ii) labor market participation.

Explanation: Obtaining a place in ECS is not a primary outcome because the market for daycare is highly rationed to the point that a large treatment effect on applications could reduce the probability of getting accepted due to increased competition. Because the treated sample is rather small relative to the target population, we do not expect massive displacement effects. Therefore, a positive effect on this outcome would not imply that, if the intervention was generalized, we would observe the same treatment effect due to general equilibrium effects. However, if we manage to document that an unmet demand for ECS exists, this would be evidence supporting a reduction of rationing and a public investment to strengthen the supply of ECS.

Hypothesis testing

The intervention consists in providing parents with information (and assistance) on ECS and our first goal is to test whether the treatments increase demand for ECS measured by our primary outcome of interest. Our main targets are *intention to treat* parameters for the two treatment arms.

A seemingly natural way of testing this hypothesis would be to estimate a regression of the form:

$$Y_{si} = \beta_1 D_1 + \beta_2 D_2 + g(X) + \varepsilon_{si}$$

With Y_{is} indicating whether parent i in strata *s* applies to formal childcare (or other outcomes), α_s indicating strata fixed effects to reflect the experimental design, $g(X)$ is a function of stratum indicator reflecting the design and possibly a set of pre-treatment covariates that are likely to influence the outcome. D_1 and D_2 represent mutually exclusive indicators for treatment arms and the associated ß coefficients of interest.

Testing against the null that $\beta_1 = \beta_2 = 0$ using a Fischer statistic". However, recent work (Goldsmith-Pinkham et al., 2022) show that in the presence of heterogenous treatment effects, estimating this equation does not yield a consistent estimate of the treatment effect.

Instead, we follow their recommendations in line with the work by (Lin, 2013; Negi & Wooldridge, 2021) and estimate the following equation:

$$Y_{si} = \beta_1 D_1 + \beta_2 D_2 + g_0(X) + \beta_3 D_1 \times D_2 \sum_k D_k \left(g_k(X) - E\big(g_k(X)\big) \right) + \varepsilon_{si} \qquad with\ k \in \{1,2\}$$

Which modifies the first equation by adding treatment interactions and interactions with the demeaned version of the functions g(X) with specific coefficients for each interaction.

With random assignment of treatments and enough variation and overlap in X, estimating this equation with OLS yields consistent estimator of the intention to treat effects with minimal asymptotic variance. Because of the binary nature of the dependent variable, we adjust standard errors for cluster-heteroskedasticity robust standard errors adjusting for the within-stratum correlation following (de Chaisemartin & Ramirez-Cuellar, 2020)

The following hypotheses will thus be tested:

- **Hyp 1:** The intervention increases parents' level of information about ECS.
    - o Hyp 1.a.: The effect will be stronger among low SES families

- **Hyp 2:** The intervention increases parents' intention to apply to ECS.
    - o Hyp 1.a.: The effect will be stronger among low SES families

- **Hyp 3:** The intervention increases parents' likelihood to apply to at least one ECS.
    - o Hyp 2.a.: The effect will be stronger among low SES families

- **Hyp 4:** The intervention increases parents' likelihood to apply *early* to ECS.
    - o Hyp 3.a.: The effect will be stronger among low SES families

- **Hyp 5:** The intervention increases the number of applications per households.
    - o Hyp 4.a.: The effect will be stronger among low SES families

- **Hyp 6:** The intervention will have a larger impact on the T2 group (information plus administrative support) than on the T1 group for every outcome because of behavioral barriers.

Experimental design

Targeting: we target families who a) wait for a child (5th to 9th month of pregnancy, corresponding to the moment when most mothers visit maternity wards), b) live in the selected area (departments of Paris, Seine Saint Denis and Val de Marne), c) have a telephone with internet connection so that we can send the text messages and videos, and d) understand simple messages in French. It may be noted that even among low-SES and immigrant families, criteria c) and d) are not particularly restrictive as more than nine low-SES families out of ten meet c) and more than nine immigrant individuals out of ten understand French.

Access to the field: we have sent a written presentation of the project to the coordinators of the maternity wards of nine hospitals, who have confirmed their support for the project. During the baseline study (October-December 2022), we will approach mothers in the waiting rooms of these maternity wards using a systematic sampling procedure based on the order of arrival of

mothers to the maternity ward. This sampling procedure is stratified by parental education (basic, high school diploma, tertiary diploma). Stopping rule: reaching the predefined sample size and quotas by parental education.

We will then present the study, inform them about confidentiality and data protection rules and ask for their consent to participate in the study. A leaflet containing legal data protection information will also be given to them.

Sample size: 1687 families minimum. This is based on power calculations using the Powerup software with the following parameters: a) minimum detectable effect size for the main effect: 0.15; b) randomization procedure as described above; c) R2=40% owing mainly to baseline information on intention to apply for ECS; d) T1=33%, T2=33% C=34%; e) blocks: 9; f) two-tailed alpha level: 5%; g) statistical power: 80%; h) attrition at the endline: 25%.

Randomization:

Within each maternity ward, we keep individuals who completed the baseline survey and construct stratification variables based on the interaction of the following characteristics from baseline: (i) education level; (ii) number of months of pregnancy; (iii) whether the family has already accessed an ECS; (iv) their intention to use ECS at baseline. If some strata have less than 3 individuals, we group the variables iii and iv into iii' "intend to use ECS and already has" or "intend to use ECS and has not already" or "do not intend to use one". We then randomly assign T1, T2, and control within strata with an expected assignment probability of ⅓ in each arm. Therefore, our subsequent analysis will account for the multi-site block-randomization design. Data collection in each maternity ward takes approximately two weeks.

Placebo

Participants allocated to the control group will also receive seven text messages (+ 2 videos) that will also be given to the two intervention groups to maintain involvement in the program throughout the year and hence minimize attrition at endline. The content of the text messages will be about (i) general events throughout the year (e.g., welcoming text message, Christmas, new year), and then (ii) some useful tips not affecting our outcomes of interest (e.g., flea markets around Paris).

Data collection procedures:

1) Baseline: questionnaires are administered on a tablette with the support of the interviewer.

The following variables are collected in the questionnaires:

- Sociodemographic characteristics of the family (level of education; migratory background; economic resources)
- Intention to use ECS
- Level of information on ECS (e.g., types of ECS known, perceived costs)
- Labor market intentions (i.e., whether the mother is planning to go back to work/look for a job after child delivery, and if so when)

Some other information is also collected to understand the determinants of the application to ECS (see tables below for hypotheses):

- Deprivation/salience of vital needs
- Temporal preferences
- 2 measurements of mothers' investment and health behaviors during the pregnancy i) smoking behavior during the pregnancy ii) breastfeeding intention
- Informal care available

- Social resources available (e.g., friends to help parents fill the forms)
- Perceived impact of staying at home on the mother's professional career and wages
- Perceived impact of staying at home on the mother's wellbeing
- Parents' beliefs about children's development: how long should a child be (exclusively) cared after by her parents; benefits of ECS on children's development; skills one child should acquire during early childhood
- Parents' level of trust in several communities to take care of their children i) parents and brothers and sisters ii) the rest of the family iii) Friends iv) Childminders (assistante maternelle) v) childcare centers (crèches)
- Social norms regarding childcare
- Digital divide

2) Endline and follow-up: telephone interview (CATI). Parents will be given a small monetary gratification to minimize attrition.

Interviewers are blind to the experimental status of interviewees at each stage of the data collection process.