

Paper title: Long run effects of short-term early childhood education subsidies  
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**Background:**

The expansion of early childhood education in developing countries has been largely supported by project interventions, which provide subsidized programs for a fixed period of time, followed by the introduction of small user fees in order to sustain the programs. A key unanswered question in the existing literature is how these short-term subsidies affect long-run price and quantity of early childhood education. This question deserves attention given that it has direct implications on how to design public policy to promote the expansion of early childhood education in developing countries.

**Purpose:**

I examine the impact of a short-term early childhood subsidy in Indonesia on preschool enrollment (quantity) and preschool fees (price) seven years later. I also conduct a survey experiment in order to understand demand-side channels. I hypothesize that parental decision to invest in early childhood education after the subsidies end is a function of *learning effects* (i.e., parents learning about the benefits of preschool from peers) and *anchoring effects* (i.e., parents anchoring around the subsidized price and unwilling to pay for preschool later).

**Subjects:**

My analytic sample consists of 113 villages that received the short-term early childhood education subsidy (treatment group), and 92 comparison villages that never received the subsidy (control group). The same villages were surveyed in 2009 (baseline), 2010, 2013, and 2016. Within each treatment and control village, ten households were randomly sampled among households that had at least one preschool aged child at baseline. The same households were surveyed in 2009, 2010, 2013, and 2016.

**Program:**

The Indonesia Early Childhood Education and Development (ECED) Project provided poor, rural villages with block grants that were equivalent to USD 18,000 and disbursed over three years. These block grants expanded access to preschools by offering free or heavily subsidized programs (World Bank 2014). Preschools in Indonesia typically cater to children between ages three and five, and largely focus on play-based learning.

Villages were selected into the project in the following way. First, nine districts were selected on the basis of meeting the following criteria: (i) high poverty rate, (ii) low educational attainment, and (iii) capacity for evaluation. Second, within each district, villages were ranked by population size since the government wanted to maximize the number of beneficiaries of the project. Within each district, approximately 12 of the most populated villages were selected into treatment. District administrators recommended approximately 10 comparison villages within each district that had similar poverty rates and educational attainment levels as the treatment villages.

**Research Design:**

My identification strategy leverages the cross-village variation in early childhood education

subsidies from the Indonesia ECED Project, comparing the change in preschool enrollment and fees before and after subsidies began in villages that received the block grants (treatment villages) relative to preschool enrollment and fees before and after subsidies began in villages that never received the block grants (comparison villages). By comparing changes between treatment and comparison villages, I control for observed and unobserved time-invariant characteristics as well as time-varying characteristics common to both groups that may be correlated with both short-term subsidies and the outcomes of interest. A causal interpretation of my results requires the assumption that the trends in outcomes would have been the same in both treatment and comparison villages in the absence of block grants. I rule out key threats to the internal validity of my model, showing that changes in preschool price and quantity are not driven by differences between treatment and comparison villages in the receipt of other governmental programs during the period of study.

### **Analysis:**

My analysis consists of three sections. First, I estimate a difference-in-differences model to estimate the impact of the short-term subsidy on preschool enrollment and fees.

The second and third sections explore potential demand-side channels driving my diff-in-diff results. Specifically, these latter sections document the relative magnitude of learning effects and anchoring effects. In the second section, I conduct a survey experiment as part of the 2016 data collection. I randomly assigned households into one of three types of frames about early childhood education. The first group (reference category) framed preschool as a public investment. The second group received a short vignette informing them about the benefits of preschool. The third group framed preschool as a private investment. The outcome of interest is the contrast in parents' stated preference for investing in early childhood education between households in treatment and comparison villages, as well as the difference in contrasts across the three survey groups.

In the third section, I focus on a subset of households in treatment and comparison villages that had at least one child who was preschool age during the short-term subsidy period and at least one child who was preschool age after the short-term subsidies ended. I re-estimate my diff-in-diff model using the younger sibling's preschool enrollment as the outcome. This analysis sheds light on parents' revealed preference for investing in early childhood education.

### **Results:**

I show that the impact of short-term subsidies on preschool enrollment and fees varies considerably over time. One year after the start of the treatment, the short-term subsidies increased preschool enrollment by 16 percent and reduced monthly preschool fees per student by 92 percent. Seven years after the start of the treatment, the short-term subsidies had persistent effects on raising preschool enrollment (9 percent) but no significant impacts on preschool fees. The key results are summarized in Figure 1 below.

Results from the survey experiment and analysis of younger siblings suggest that short-term early childhood education subsidies had large positive learning effects, net of any anchoring effects.

**Conclusion:**

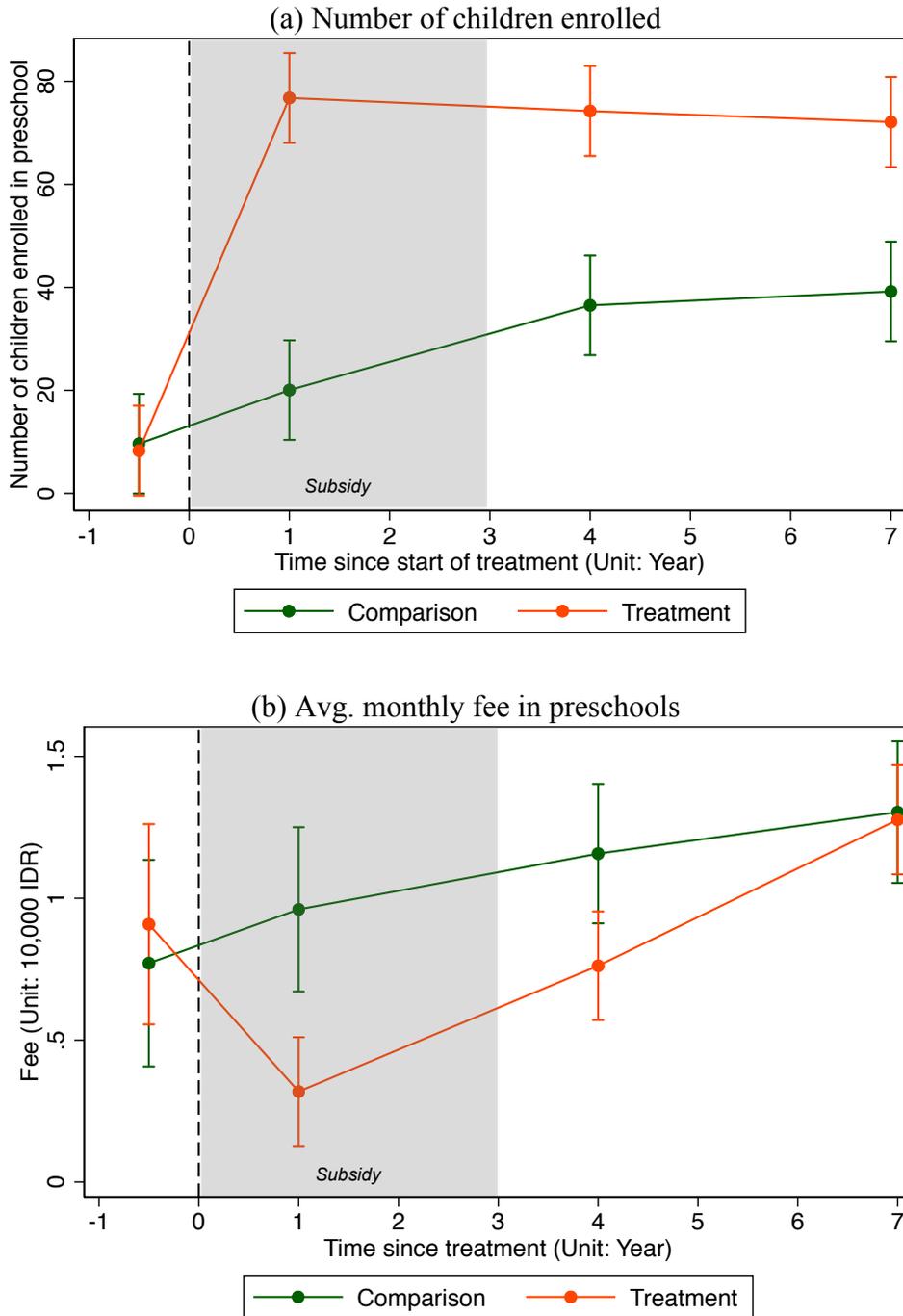
My paper aims to advance our understanding of how to use financial instruments to expand access to early childhood education in developing countries. To my knowledge, the impact of *short-term* subsidies in education has not been explored since subsidies provided for compulsory schooling are typically implemented as policies that do not have time limits. However, the recent expansion of non-compulsory education programs in developing countries poses new questions about subsidies that are offered for a fixed period of time.<sup>1</sup>

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<sup>1</sup> In addition to early childhood education, other areas of education where short-term grants have been documented are after-school programs. Like early childhood education, these after-school programs are outside the scope of compulsory education. For example, a technology-aided after-school instruction program was heavily subsidized by philanthropic funding but ended soon after the evaluation of the program (see footnote 30 in Muralidharan et al. 2016).

Figure 1. Trends over time for preschool enrollment and fees



Note: Data from Indonesia ECED Survey (2009, 2010, 2013, 2016). Mean with 95% confidence intervals shown in each figure. Dashed vertical line indicates when treatment villages began receiving subsidies. Grey shaded area indicates period when short-term subsidies were provided to treatment villages.

**References:**

Muralidharan, K., Singh, A., & Ganimian, A. J. (2016). *Disrupting education? Experimental evidence on technology-aided instruction in India* (No. w22923). National Bureau of Economic Research.

World Bank. (2014). Indonesia Early Childhood Education Project Implementation Completion and Results Report. Available online <http://documents.worldbank.org/curated/en/854891468267037215/Indonesia-Early-Childhood-Education-and-Development-Project-ECED>