

EARLY CHILDHOOD REGRESSION DISCONTINUITY STUDY

**STUDY BRIEFING (Date: September 13, 2016)
SUPPLEMENTAL SLIDES (Date: October 4, 2016)**

How much does Connecticut PreK boost normal expected growth in academic achievement?

Claim	Translation following Lipsey et al. (2012)
<p>Large, positive and statistically significant effects on a subset of student's early <u>literacy</u> skills (Effect size: 0.69)</p>	<p>On average, a child who attends state-funded School Readiness full-day or school-day prekindergarten will receive approximately a 50% boost in their early <u>literacy</u> skills, in comparison to a child who does not attend PreK</p>
<p>Large, positive and statistically significant effects for most student's early <u>numeracy</u> skills (Effect size: 0.48)</p>	<p>On average, a child who attends state-funded School Readiness full-day or school-day prekindergarten will receive approximately a 40% boost in their early <u>numeracy</u> skills, in comparison to a child who does not attend PreK</p>

Age-Based PreK Studies Using RD:

Ensuring an Apples to Apples Comparison (1)

The basic idea:

- The “gold standard” for looking at impact or outcomes of programs are lottery-based designs
- In the context of PreK, if we used a lottery system, the groups we would need to compare are outcomes for those that:
 - Outcomes for those that planned to attend & completed PreK (*treatment group*), *versus*
 - Outcomes for those that planned to attend & *did not* complete PreK (*control group*)
- For ethical reasons, we cannot use a lottery system to decide who gets to complete PreK and who does not. This means we have to use another design to look at impact or outcomes of PreK.
- The best alternative option is a regression discontinuity (RD) design. Therefore, the RD design is the industry standard in PreK evaluations.

Age-Based PreK Studies Using RD:

Ensuring an Apples to Apples Comparison (2)

In an RD design, we cannot create the 2 groups for comparison from kindergarten students only, as the students who show up in K, but did not attend state-funded School Readiness full-day or school-day PreK, do not meet the first condition for comparison. That is, they never planned to attend this type of PreK program.

Students in K who **planned to attend** state-funded PreK



Students in K who **did not plan to attend** state-funded PreK



Examples of potential differences:

- Sally is a new immigrant and so wasn't in state
- Chester went to an excellent private PreK
- Stephanie stayed home with her grandmother

Age-Based PreK Studies Using RD:

Ensuring an Apples to Apples Comparison (3)

We can, however, create the two comparison groups using students who attend School Readiness state-funded full-day or school-day PreK, combined with information about (a) their birthdays and (b) enrollment cut off date. In this scenario, whether you were born on a day that made you eligible for PreK is random, and naturally creates control and treatment groups.

For students close to the enrollment eligibility date, the only difference between these two groups is that

One group experienced PreK
(Treatment)



Students in K who completed
state-funded PreK



One group had to wait until the next
year to experience PreK (Control)

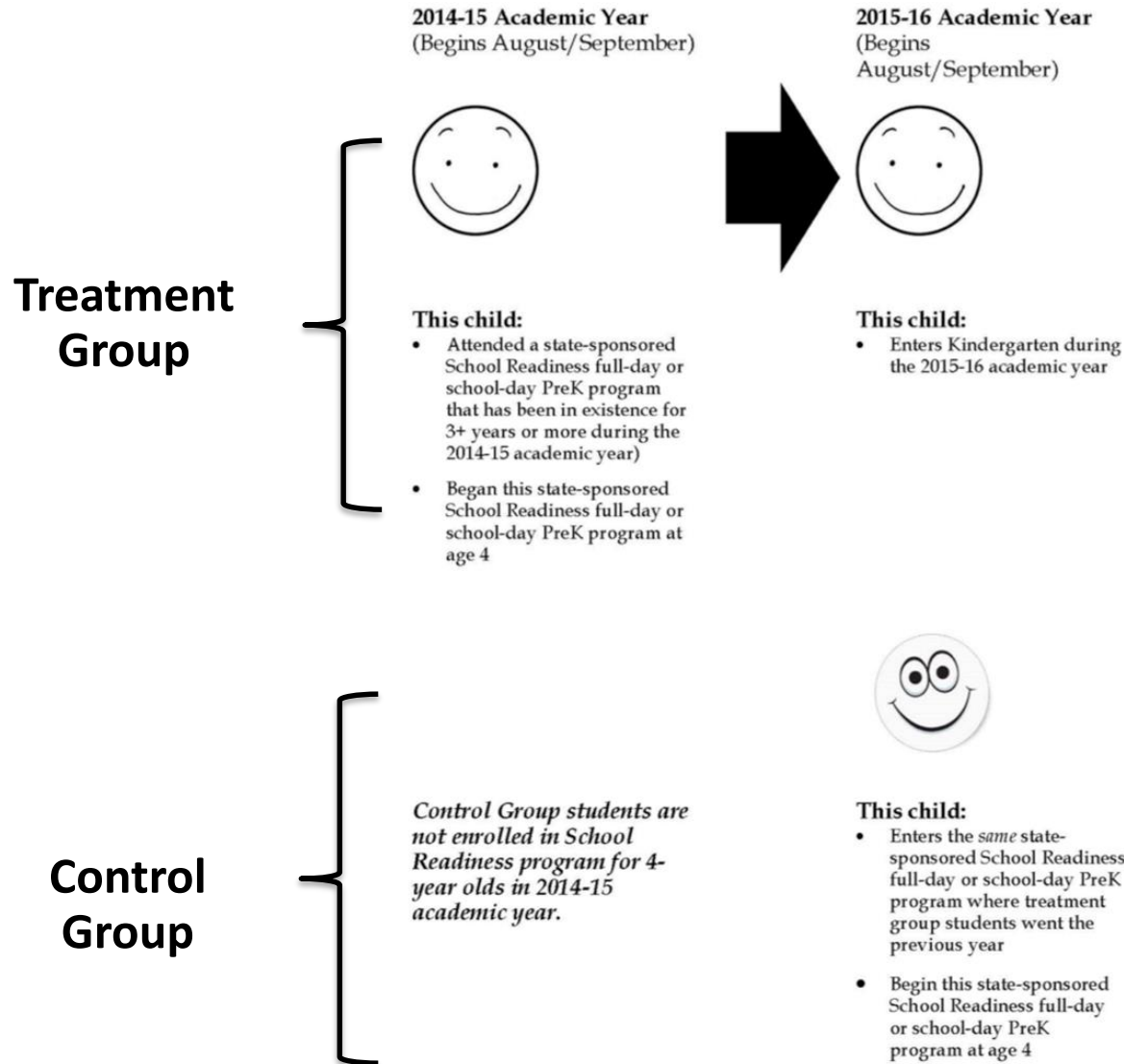


Students who are attending
state-funded PreK



Age-Based PreK Studies Using RD:

Apples to Apples Comparison in this Study



Both the treatment and control groups are given the same tests in 2015-16 during the same time period

References & Sources

Lipsey, M. W., Puzio, K., Yun, C., Hebert, M. A., Steinka-Fry, K., Cole, M. W., & Busick, M. D. (2012). *Translating the Statistical Representation of the Effects of Education Interventions into More Readily Interpretable Forms*. National Center for Special Education Research. Retrieved from: <http://files.eric.ed.gov/fulltext/ED537446.pdf>

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