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Abstract Title Page
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Title: Effects of the Tennessee Voluntary Prekindergarten Program on School Readiness

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Abstract Body

Limit 4 pages single-spaced.

Background / Context:

Description of prior research and its intellectual context.

Relatively few rigorous studies of the effectiveness of contemporary public prekindergarten programs have been conducted despite the growing number of programs and large monetary investments they require. The study on which this presentation is based was launched in partnership with the Tennessee State Department of Education's Division of School Readiness and Early Learning to provide an assessment of the effects of the statewide Tennessee Voluntary Prekindergarten (TN-VPK) program on the readiness for kindergarten of the economically disadvantaged population it serves. Research studies have reported the rapid neurological, cognitive, and social-emotional growth that takes place during the first five years of life and the positive effects of high-quality early childhood educational programs (e.g., Bowman et al., 2000; Karoly et al., 1998; Reynolds et al., 2001; Shonkoff et al., 2000). In recent years, however, TN-VPK has become a controversial program in Tennessee, with some legislators expressing doubts about its value in the context of severe budget shortfalls and still others referring to it even more skeptically as expensive babysitting. This study interleaves a longitudinal randomized control trial (RCT) and an age-cutoff regression discontinuity (RD) design to evaluate the effectiveness of the TN-VPK program. Though the project is still underway, this presentation will summarize results for two cohorts of RCT participants.

Purpose / Objective / Research Question / Focus of Study:

Description of the focus of the research.

Tennessee currently invests nearly $85 million each year in its VPK program, which includes over 900 classrooms that serve more than 18,000 economically disadvantaged children from across 94 of the 95 counties in the state (http://www.tn.gov/education/prek/factsheet.shtml). As part of the Peabody Research Institute's ongoing investigation into the effects of Tennessee VPK, results from the portions of the study already completed show significant benefits for the children who participate in VPK. Two cohorts of children have participated in the RCT portion of the study – one cohort completed VPK in 2010 and the second cohort completed VPK in 2011. In this presentation, we will present results that combine the data from the two cohorts, examining how well VPK benefitted its participants during their prekindergarten year. A separate question we are now able to address is whether those benefits are different for different subgroups of children characterized by gender, English Language Learner status, age, and baseline performance level. Investigating differential effects is driven by an interest in the impact on subgroups as seen, for example, in Oklahoma's pre-k program (Gormley, 2008) and by the potential need to clarify main effects (Bloom & Michalopoulos, 2010). Results will be discussed in terms of their implications for public pre-k policy and practice

Setting:

Description of the research location.

TN-VPK supports over 900 pre-k classrooms that serve more than 18,000 at-risk children in 133 of the 136 Tennessee school systems. It is, therefore, a statewide program serving all areas of the

state, both rural and urban.

Population / Participants / Subjects:
Description of the participants in the study: who, how many, key features, or characteristics.

To be eligible for VPK in Tennessee, children must be age four on or before September 30 of the respective school year. By statutory requirement, the program gives top priority for admission to children who qualify for the Free or Reduced Price Lunch Programs, and 86% of the children enrolled statewide meet that criterion. Statewide, 51% are male, 28% are African-American with another 9% other minorities, 4% are English Language Learners, and 10% have special education designations. The RCT portion of this study has collected assessment and parent interview data at the beginning and end of the pre-K year for 779 children who received VPK and 301 children who did not. Those students were originally on 76 different randomized VPK applicant lists, representing 59 schools in 22 districts across Tennessee.

Intervention / Program / Practice:
Description of the intervention, program, or practice, including details of administration and duration.

TN-VPK operates through competitive grants to local school systems that apply for approval and funding. Those grants support only a portion of the necessary cost, the balance must come from other sources. This arrangement permits and encourages collaboration between school systems and other organizations. In this collaboration model, school districts may operate their pre-k programs through collaborative agreements with local nonprofit and for-profit child care providers and Head Start programs so long as those agencies have attained the highest rating from the licensing system administered by the Tennessee Department of Human Services and alos meet the TN-VPK standards. Those standards, which are set by the State Board of Education, require the following:

- A state licensed teacher with an early childhood education endorsement in each classroom;
- A teacher assistant who holds or is actively working toward at least a CDA or associate degree in early childhood;
- Professional development support for teachers;
- An adult-student ratio no smaller than 1:10;
- A small class size maximum of 20;
- An approved age-appropriate curriculum aligned with the Tennessee Early Childhood Education Developmental Standards;
- A family engagement component and a pre-k to kindergarten transition plan for each child;
- Vision, hearing, and health screening and referral services;
- A minimum of 5.5 hours per day, exclusive of nap time, for a minimum of 180 days per year within a calendar that includes 200 working days of 7.5 hours for teaching staff.

Research Design:
Description of the research design.

The RCT portion of this study involves random admission into the VPK program in schools with more applicants than they have places. In the summer before each of two school years, administrators in schools expecting a larger number of applicants to their TN-VPK program than

they could accommodate were asked to participate in the RCT. All their eligible applicants were placed on a list that was then sorted into random order by the research team. Children were offered seats in the VPK program in the order in which they appeared on the randomized list. This procedure gave each child an equal chance to be ranked high enough on the list to be admitted but also, by the same equal chance, left some children too low on the list for a seat to be available for them. The total sample randomized across both cohorts included more than 2000 children. A subsample of 1080 these randomized children with parental consent were individually assessed at the beginning and end of their VPK year, at the end of kindergarten, and will be assessed at the end of first, second, and third grade, as well. Of these, 779 attended VPK and 301 were not admitted and constitute the control group.

Statistical, Measurement, or Econometric Model:
Description of the proposed new methods or novel applications of existing methods.

This presentation will focus on analysis of the assessment outcomes and kindergarten teacher ratings for participants in the two cohorts of the intensive sub-study of the RCT portion of the larger study, using multilevel regression controlling for a host of child, family, and classroom characteristics, along with propensity score weighting to account for any baseline differences between treatment and control groups.

Usefulness / Applicability of Method:
Demonstration of the usefulness of the proposed methods using hypothetical or real data.

This study includes a large sample of economically disadvantaged children for which pre-k effects can be analyzed from a randomized field experiment, resulting in one of the largest, most rigorous explorations of the effects of a public prekindergarten program to date.

Data Collection and Analysis:
Description of the methods for collecting and analyzing data.

Children were individually assessed using a set of Woodcock Johnson III achievement tests of pre-reading, language, and mathematic skills (Letter-Word Identification, Spelling, Understanding Directions, Applied Problems, Quantitative Concepts, Passage Comprehension, and Oral Comprehension). Parent Interviews were conducted during the pre-k year to collect parent and child demographic information, as well as type and frequency of at-home activities. Ratings of the children's cognitive, social, and behavioral skills were also collected from the kindergarten teachers in the schools the children attended after the prek year.

Findings / Results:
Description of the main findings with specific details.

The results of the RCT indicate that, at the end of the school year, children who participated in TN-VPK significantly outperformed the children who did not attend TN-VPK on all of the direct assessment scales examined, with effect sizes ranging from .08 to .42. Regarding differential impacts of the program for subgroups of children, VPK was equally effective for boys and girls, and generally effective regardless of the age at which children began VPK. However, VPK was more effective for lower performing children at baseline than higher performers. Further,

English Language Learners in VPK made significantly greater gains on all the assessment measures than similar children not exposed to VPK. Results from analyses examining the impact of VPK on teacher ratings of student behavior at the beginning of Kindergarten will be available for this presentation at the time of the SREE conference.

Conclusions:

Description of conclusions, recommendations, and limitations based on findings.

Results indicate that TN-VPK is effective at preparing children for success in school. Though the size of the impact is different for different types of skills, the effect sizes overall were quite impressive and clearly in a range that provides practical as well as statistical significance. We are continuing to follow these children to examine whether these prek impacts are sustained through early elementary school. Additionally, we are using results from the quasi-experimental component (the regression-discontinuity design) to supplement these results with a representative sample of children attending Tennessee VPK statewide.

Appendices

Not included in page count.

Appendix A. References

References are to be in APA version 6 format.

Bloom, H., & Michalopoulos, C. (2010). *When is the story in the subgroups? Strategies for interpreting and reporting intervention effects for subgroups*. New York: MDRC.

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Gormley, William. (2008). The effects of Oklahoma's Pre-K program on Hispanic students. *Social Science Quarterly*, 89, 4:916-36.

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