

Great Start Readiness Program and Children's Academic Achievement: A Longitudinal Study

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OBJECTIVE

We examined the relationship between participation in Michigan's Great Start Readiness Program (GSRP) and student achievement using data from a mid-sized urban school district. Michigan's GSRP is a state-funded preschool program catering to four-year-old children from low-income families. We extend previous efforts by applying regression analyses and piecewise linear growth models to examine patterns of children's academic development trajectories in reading and math from kindergarten to the third grade among children who participated in the GSRP and those who did not.

LITERATURE REVIEW

Many state-funded preschool programs serve four-year-old children. In the 2021-22 school year, over 1.26 million 4 years old children were enrolled in state-funded preschool programs.

Numerous Studies have examined the short-term impacts of preschool programs and consistently reported positive effects of those programs for four-year-old children.

However, the literature on the long-term effects of preschool programs for four-year-old children is still emerging and relatively scarce, and the results are mixed.

GREAT START READINESS PROGRAM

- GSRP is a state-funded preschool program for four-year-old children who may be at risk of education disadvantages.
- GSRP started in 1985 with 694 children, and it was funded by \$249.6 million by the state and served 35,985 children during the 2021-22 school year.
- The effectiveness of the GSRP program has only been evaluated in a limited number of studies, all of which, to our knowledge, are unpublished reports.

RESEARCH QUESTIONS

Our longitudinal study followed five cohorts of kindergartners to the end of the third grade **to study whether GSRP participants outperformed non-participants by the end of the third grade, and if so, how GSRP participants' growth trajectory compared to that of non-participants** by estimating the monthly growth during the kindergarten, the first grade, the second grade, and the third grade, respectively.

SAMPLE, MEASURE, ANALYSIS

Sample: A total of 1,394 children were in the sample from a mid-sized urban school district in Michigan.

Measure: Student achievements were measured using MAP at six times: (a) entry into kindergarten, (b) the end of kindergarten, (c) the end of the first grade, (d) the end of the second grade, (e) the midpoint of the third grade, and finally (f) the end of the third grade.

Analysis: Regression and Piecewise Linear Modeling

RESULTS

Table 3
GSRP's Effect on Math and Reading Achievement Measures at Various Time Points with Control for Children's Characteristics and Other Programs

	Kindergarten MAP Fall	Kindergarten MAP Spring	1 st Grade MAP Spring	2 nd Grade MAP Spring	3 rd Grade MAP Winter	3 rd Grade MAP Spring
Math	0.25*** (0.06)	0.46*** (0.07)	0.38*** (0.07)	0.27*** (0.06)	0.32*** (0.08)	0.22** (0.08)
Reading	0.31*** (0.06)	0.41*** (0.07)	0.49*** (0.07)	0.33*** (0.07)	0.42*** (0.07)	0.41*** (0.08)

Note. The effect in the table was with control for child's characteristics including age, gender, race, socioeconomic status, and other ECE programs and services. Outcome measures were standardized.

* $p < .05$; ** $p < .01$; *** $p < .001$

Results from regression analyses showed that that participation in GSRP was not only associated with positive short-term outcomes when children entered kindergarten, but also with long-term outcomes by the end of third grade.

Results from piecewise linear growth modeling showed that GSRP children started kindergarten with higher achievement, and exhibited a statistically significant faster monthly growth rate compared to non-GSRP children. However, there were no significant difference in growth rates between GSRP children and non-GSRP children in later grades.

Table 4
Summary of the Results of the Piecewise Linear Growth Modeling on GSRP's Effect on Student Math and Reading Achievement

Effects	Math			Reading		
	Effect	Std. Error	p-value	Effect	Std. Error	p-value
Monthly growth rate during kindergarten	0.52***	0.12	<.001	0.27**	0.10	.01
Monthly growth rate during the 1 st grade	-0.15	0.12	.22	0.16	0.10	.11
Monthly growth rate during the 2 nd grade	-0.18	0.10	.07	-0.15	0.10	.13
Monthly growth rate during the 3 rd grade	-0.04	0.10	.66	0.16	0.11	.15
GSRP effect by the end of the 3 rd grade	3.18***	0.99	<.001	6.56***	1.12	<.001

Note. The effect in the table was with control for child's characteristics including age, gender, race, socioeconomic status, and other ECE programs and services.

* $p < .05$; ** $p < .01$; *** $p < .001$

