

Pre-K 4 SA Shows Positive Return to San Antonio

A Summary of the Benefit-Cost Analysis

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Pre-K 4 SA shows positive return to San Antonio: A research brief on the results from Westat's benefit-cost analysis

Why this study?

The purpose of the present study was to examine the costs and the benefits of a city-funded early childhood education program, Pre-K 4 SA, currently being delivered in San Antonio, Texas. In 2012, the citizens of San Antonio voted to fund this initiative through a 1/8 cent increase in local sales tax rates, which began in 2013. Currently, the Pre-K 4 SA initiative serves more than 2,000 children annually in four geographically dispersed education centers across San Antonio, and the program reaches thousands more through teacher professional development opportunities and competitive grant competitions to local districts, charters, and early childhood programs across the city. The Pre-K 4 SA initiative was originally authorized for an 8-year term. In 2020, the citizens of San Antonio will have an opportunity to vote for the continuation of the initiative.

Westat, a large employee-owned, research organization based in Rockville, MD, with offices in San Antonio, TX, was selected in 2013 as an independent evaluator. Over the past 7 years, Westat has published an annual Pre-K 4 SA program evaluation report, which focuses on children who attend Pre-K 4 SA in one of the four education centers across San Antonio (Decker-Woodrow & Price, 2016; Decker-Woodrow et al., 2017; 2018; 2019; Edvance Research,¹ 2014; 2015). In addition to Westat's annual program evaluation, the Institute for Urban Education at the University of Texas at San Antonio conducted a study of children in kindergarten through third grade who had previously attended Pre-K 4 SA educational centers (Villareal, 2019). Together, these evaluations have found positive results for the Pre-K 4 SA initiative with respect to short- and long-term outcomes for children and families, such as increased classroom quality, increased kindergarten readiness, increased attendance, decreased need for additional early reading supports, decreased special education placement, decreased grade retention, increased 3rd-grade STAAR scores, and increased employment and wage earnings for families.

Westat, in collaboration with Teachers College Columbia University and the University of Pennsylvania, has conducted a benefit-cost analysis of the Pre-K 4 SA initiative, to provide the citizens of San Antonio and city policy makers with an estimated return on the city's investment in the initiative.

What was studied and how?

Total costs of the Pre-K 4 SA initiative were calculated using the *ingredients method*, a conservative method of cost calculation, supported by the Institute of Education Sciences within the Department of Education as a rigorous method of cost and benefit calculation.² (For more information on this method, see the technical report.) Unlike other methods limited to budgets and expenditures, the

¹ A wholly owned subsidiary of Westat.

² In recent years, the Institute of Education Sciences has funded training workshops for researchers to study the ingredients method.

ingredients method takes into account the total costs of implementing a program (including the value of facilities, equipment, and in-kind services). It is expected the ingredients method will result in total costs that are higher than other calculation methods as a result.

Building upon the cost analysis, existing Pre-K 4 SA evaluation outcomes were identified and monetized. This means outcomes of the Pre-K 4 SA initiative are given values of what those outcomes are worth to society. Those values are then totaled and compared to the associated costs to determine whether the value of outcomes is greater than the costs.

Research questions

- What are the total costs and cost per child of the Pre-K 4 SA initiative?
- How are the costs distributed across Pre-K 4 SA's core components? By resource categories?
- What are the monetary values of the social benefits produced by Pre-K 4 SA through improvements in achievement, attendance, special education placement, and family household income?
- Do the benefits of Pre-K 4 SA exceed the costs associated with those benefits?
- How much benefit was generated for each dollar of investment in Pre-K 4 SA?

Findings

The total cost of the Pre-K 4 SA program and the average cost per child are shown in Table 1. The total cost of providing the Pre-K 4 SA initiative for 1 year, in 2018 dollars,³ is \$33,454,290, including all four core components (Education Centers, Family Engagement, Professional Development, and Competitive Grants), which encompassed an estimated 21,872 preschool-age children. Simply dividing this total by the total number of children served by all four components, an average cost per child of \$1,530 is obtained.

Table 1. Total cost of Pre-K 4 SA, in aggregate and average cost per-child terms

Total cost	Value
Aggregate (all components, all resource type)	\$33,454,290
Per child (unweighted average)	\$1,530

Note: Present value cost in 2018 dollars, rounded to the nearest \$10. The total number of all children reached by the four components during the 2018-2019 school year was 21,872.

When costs were attributed to, or weighted by, the four core components of the Pre-K 4 SA initiative, costs per child varied across components. Table 2 shows the variation in average cost per child by program component.

³ These figures, as well as all other reported values, are expressed in present values using 2018 U.S. dollars and rounded to the nearest \$10 in order to avoid false precision.

Table 2. Distribution of total costs by component, aggregate, and per-child terms

Component	Total Cost	Per Child	# of Children
Education Centers	\$24,793,710	\$12,760	1,943
Family Engagement	\$1,616,100	\$830	
Professional Development	\$2,367,760	\$140	16,900
Competitive Grants	\$4,676,720	\$1,540	3,029
Total	\$33,454,290	\$15,270	21,872

Note: Present value cost in 2018 dollars, rounded to the nearest \$10. The Education Center and Family Engagement components are represented by the same 1,943 children.

Cost per child of the Education Center⁴ component is the largest at \$12,760, while costs per child of the Professional Development, Family Engagement, and Competitive Grants components were much smaller, at \$140, \$830, and \$1,540, respectively; the differences in per-child costs are due, in part, to the number of children reached by each component. This variation is not surprising because the Education Center costs represent the cost of running a high-quality pre-kindergarten education program while other components are “add-on” services and supports provided to other early childhood and elementary programs. For instance, various professional development supports and events that the Professional Development component provides to partnering local school districts are offered in addition to the regular operation of pre-kindergarten and elementary programs in these districts. This reach and the add-on nature of costs make the cost per child for these components considerably smaller.

Because other early childhood experiences available in San Antonio are also associated with a cost greater than \$0, the aggregate cost figure should be adjusted to represent the incremental cost of Pre-K 4 SA that resulted in the incremental benefits (evaluation outcome). To enable an appropriate comparison between the costs and benefits, the total cost estimate was converted to incremental cost, which assumes that 50 percent of the aggregate cost is the incremental cost that resulted in the evaluation outcomes (benefits). This value is estimated at \$6,800 per child.⁵

Next, monetary values were calculated for the following existing evaluation outcomes (Table 3).⁶ When all monetized evaluation outcome benefits were aggregated, an estimated total societal benefit of the Pre-K 4 SA initiative was estimated at \$10,590 per participating child.

⁴ The largest component of the initiative, in terms of costs, was the Education Centers (74%), followed by the Competitive Grant component (14%). As is often found in educational interventions, the bulk of the costs to deliver the Pre-K 4 SA initiative were classified under the category of personnel, including instructional staff, special education staff, school administrators, Pre-K 4 SA administrators, professional development coaches, etc.

⁵ For more information about the incremental cost calculation, see the full technical report.

⁶ The first four outcomes were found in comparison to children who did not attend Pre-K 4 SA or a district pre-kindergarten program. Attendance, grade repetition, and special education placement results include kindergarten

Table 3. Estimated benefits per child

Effects (outcomes)	Monetized Value (per child)
Improved mathematics test score at grade 3	\$1,830
Reduced grade repetition during grades K-3	\$200
Reduced special education placement during grades K-3	\$650
Increased student attendance during grades K-3	\$230
Increased weekly income among Extended Day parents	\$7,690 ^a
Total	\$10,590

Note: Present value cost in 2018 dollars, rounded to the nearest \$10. The total sum may not exactly equal the dollar values across all rows in the table due to rounding.

^aThe full estimated result for Extended Day participants is \$15,800 with salary and non-salary compensation taken into account. However, to appropriately attribute evaluation outcome effects across participants, that value is spread across the total of 1,943 children (rather than the 945 who attended Extended Day), thus arriving at the value included in the benefit-cost ratio of \$7,690.

To examine whether the identified benefits of Pre-K 4 SA exceeded the associated costs, a benefit-cost ratio was calculated to analyze how much benefit to the society is generated per dollar of investment in Pre-K 4 SA. The benefit-cost ratio of Pre-K 4 SA was approximately 1.56, which means that every dollar invested in Pre-K 4 SA generated, on average, \$1.56 of benefits to society, as well as a net benefit return of nearly \$3,800 per child (\$3,790). If multiplied by the number of associated children served during the year, this per-child return results in a net benefit return of nearly \$7.4 million (\$7.36M).

Conclusion

The results from Westat's benefit-cost analysis indicate that the initial investment in Pre-K 4 SA is providing societal benefits to the city of San Antonio. Additional benefits may exist through the family engagement, professional development, and competitive grant components of the initiative; however, evaluation outcomes have yet to be explored as a result of those core components.

Key findings from the study

- ✓ Pre-K 4 SA costs fall into four core components: (1) 4 educational centers, (2) competitive grants, (3) professional development, and (4) family engagement.
- ✓ 74 percent of the total costs are associated with the four education centers with the majority of costs going towards personnel.
- ✓ San Antonio receives a conservatively estimated return of \$3,790 per child from its associated investment in Pre-K 4 SA.
- ✓ The estimated return per child totals to an estimated \$7.36 million net benefit to San Antonio.

through 2nd grade; the family household income results are from the end of the pre-kindergarten year and within the context of an analysis of Pre-K 4 SA only.

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