

Age 21 Cost-Benefit Analysis of the Title I Chicago Child-Parent Center Program

Executive Summary

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Introduction

In this study, we conducted the first cost-benefit analysis of the federally financed Title I Chicago Child-Parent Center (CPC) Program. The major question addressed was: Do program benefits exceed costs? The CPC program is a school-based preschool and early school-age intervention for low-income children that emphasizes parent involvement and the development of literacy skills. Previous studies have indicated that program participation beginning in preschool is independently associated with higher school achievement, higher rates of school completion through age 20, lower rates of school dropout, lower rates of juvenile arrest for violent and non-violent charges, and with less need for school remedial services (see Reynolds, Temple, Robertson, & Mann, 2001, and Reynolds, 2000).

Sample and Methods

The main study sample includes 1,286 youth of the original sample of 1,539 in the Chicago Longitudinal Study. Data in this on-going, prospective study were collected from family surveys, educational records, and justice system records up to age 21 (March 2001). An alternative-program, quasi-experimental design was used in which the behavioral adjustment of the entire cohort of 989 children who attended 20 CPCs in preschool and kindergarten from 1983-86 was compared to a random sample of 550 eligible children who did not participate in the program but enrolled in an all-day kindergarten program. Less than one-fourth of the comparison group attended a preschool program. Sample recovery rates were 85% and 81%, respectively, with no evidence of selective attrition. At the beginning of the study, groups were comparable on many family background measures.

Opened in 1967 with funding from Title I of the landmark Elementary and Secondary Education Act of 1965, the CPC program provides comprehensive educational and family support services from ages 3 to 9 in neighborhood schools. The philosophy of the program is to help children develop skills in reading, math, and communication through a broad spectrum of classroom and parent activities, and field trips. Each Child-Parent Center is run by a head teacher and includes a staffed parent resource room, school-community outreach activities, and health services. After preschool and kindergarten, the school-age program in the elementary school provides reduced class sizes, teacher aides for each class, continued parent involvement activities, and an enriched classroom environment for developing reading and math skills.

Following standard economic procedures, we estimated the present value of program benefits and costs in 1998 dollars for five main categories of benefits: (1) reductions in expenditures for the school remedial services of grade retention and special education, (2) reductions in criminal justice system expenditures for both juvenile and adult arrest and treatment, (3) reductions in child welfare system expenditures associated with child abuse and neglect, (4) averted tangible costs to crime victims, and (5) increases in adult earnings and tax revenues projected for increases in educational attainment. The present value of program benefits was estimated based on a 3% annual discount rate evaluated at the beginning of preschool participation. The distribution of benefits were calculated separately for society at large (program participants and the general public), the general public, and government savings.

Results

Relative to comparison groups and controlling for family economic disadvantage, participation in the CPC preschool, school-age, and extended intervention (4 to 6 years) components was associated, in the expected

direction, with two or more of the following outcomes: school achievement at age 14, special education placement and grade retention, juvenile arrest by age 18, child maltreatment, and high school completion by ages 20/21. Relative to the comparison group, preschool participants had a 29% higher rate of high school completion, a 33% lower rate of juvenile arrest, a 42% reduction in arrest for a violent offense, a 41% reduction in special education placement, a 40% reduction in the rate of grade retention, and a 51% reduction in child maltreatment. School-age participation and extended program participation for 4 to 6 years were associated with 30 to 40% lower rates of grade retention and special education placement. Compared to children with 1 to 3 years of participation, extended program participants also had higher achievement test scores in adolescence and lower rates of child maltreatment by age 17.

Results of the cost-benefit analysis indicated that each component of CPC program had economic benefits that exceeded costs. With an average cost per child of \$6,730 (1998 dollars) for 1.5 years of participation, the preschool program generated a total return to society at large of \$47,759 per participant. The largest benefit was program participants' increased earnings capacity projected from higher educational attainment. Economic benefits of the preschool program to the general public (taxpayers and crime victims), exclusive of increased earnings capacity, were \$25,771 per participant. The largest categories of public benefits were increased tax revenues associated with higher expected earnings capacity (28%), criminal justice system savings due to lower rates of arrest (28%), savings on tangible costs for crime victims (24%), and savings on school remedial services (18%). Overall, \$7.10 dollars were returned to society at large for every dollar invested in preschool. Excluding benefits to participants, the ratio of program benefits to costs for the general public was \$3.83 for every dollar invested. The ratio of benefits to costs for government savings alone was \$2.88 per dollar invested.

The present value of benefits for preschool participation was substantially higher than the benefits for school-age participation. The school-age component provided a societal return of \$4,944 per participant. Given a cost of \$2,981 per child for 2 years of participation, benefits modestly exceeded the investment in the program. The benefit-cost ratio for society at large was \$1.66 per dollar invested (\$1.42 public benefit per dollar invested). The main benefit was savings on school remedial services.

Relative to participation for 1 to 3 years, participation in the program for 4 to 6 years (preschool to second or third grade) also was associated with economic benefits that exceeded costs. The present value of benefits to society at large was \$24,772 per participant. Given an average cost of \$4,068 per participant (above and beyond less extensive participation), the extended intervention program provided a substantial return to society at large. The benefit-cost ratio for society at large was \$6.09 per dollar invested (\$3.59 public benefit per dollar invested). The greatest benefits were savings on school remedial services, increased tax revenues, and averted crime victim costs. Extended program participants typically had the highest levels of adjustment in the study. Overall, our findings of cost-effectiveness were robust to different discount rates and alternative procedures for estimating projected earnings and criminal justice system expenditures.

Conclusion

As the first cost-benefit analysis of a federally-financed, comprehensive early childhood intervention, findings indicate that participation in each component of the program was associated with economic benefits that exceeded costs. This was accomplished by increasing economic well being and reducing educational and social expenditures for remediation and treatment. Similar to Head Start, the CPC preschool program is the most intensive and comprehensive component and yielded the greatest benefits by age 21. Findings for school-age and extended intervention demonstrate the benefits of reduced class sizes and enriched school environments in the early grades. Thus, contemporary, large-scale child-development programs can provide substantial long-term benefits to society.

Given limited financial and human resources for health and educational interventions, greater levels of public investments in programs with demonstrated cost-effectiveness are warranted. Unlike most other social

programs, the Child-Parent Center Program provides benefits to society that far exceed costs and is routinely implemented through a large urban school district. The present value of public benefits of the preschool program for the 1,000 study children totaled \$26 million. Since 100,000 children have been served by the program to date, these benefits translate to as much as \$2.6 billion in public savings since the program opened (1998 dollars). As states and localities increase access to early childhood care and education programs, public schools appear to be the location of choice for these initiatives. The findings of this study show the long-term payoffs that these public programs can provide.

Affiliations and Funding

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References

Reynolds AJ. *Success in Early Intervention: The Chicago Child-Parent Centers*. Lincoln, NE: University of Nebraska Press; 2000.

Reynolds, AJ, Temple JA, Robertson, DL, & Mann, EA. Long-term effects of an early childhood intervention on educational achievement and juvenile arrest: A 15-year follow-up of low-income children in public schools. *JAMA*. 2001; 285:2339-2346.

Additional Readings

1. Reynolds, AJ. The state of early intervention. In *Success in Early Intervention: The Chicago Child-Parent Centers* (Ch. 1, pp. 1-21). Lincoln, NE: University of Nebraska Press; 2000.
2. Reynolds, AJ. The Child-Parent Center Program and Study. In *Success in Early Intervention: The Chicago Child-Parent Centers* (Ch. 2, pp. 22-63). Lincoln, NE: University of Nebraska Press; 2000.
3. Temple, JA., Reynolds, AJ., & Miedel, WT. Can early childhood intervention prevent high school dropout? Evidence from the Chicago Child-Parent Centers. *Urban Education*. 2001; 35:31-56.
4. Reynolds, AJ., Miedel, WT., & Mann, EA. Innovation in early intervention for children in families with low incomes: Lessons from the Chicago Child-Parent Centers. *Young Children*. 2000; 55:84-88.
5. Reynolds, A J. (Ed.) Educational success in high-risk settings: Contributions of the Chicago Longitudinal Study. *Journal of School Psychology (Special issue)*. 1999; 37(4).