

A cost-benefit analysis of the Chicago Child-Parent Centers

The study summarized here is the first cost-benefit analysis of a large-scale, publicly funded early childhood intervention for preschool children and their families, the Chicago Child-Parent Centers (CPC; see box). A cost-benefit analysis of the CPC was considered highly important because the length, intensity, and breadth of the services it provides to children are substantially greater than in most other intervention programs; it was also feasible, because the short- and long-term outcomes of the program have measurable economic benefits. The approach and the methodology used in the analysis are briefly described here, illustrating the procedures outlined in the accompanying article by E. Michael Foster and E. Wayne Holden.

Establishing outcomes

Individual children participated in the CPC for anywhere from 2 to 6 years, setting the time frame for the evaluation. The analytic horizon, however, extends over two decades, for many of the most important consequences of early intervention programs are expected to occur in adolescence and over the transition to adulthood.

Research regarding the CPC and other intervention programs suggested that five main categories of outcomes would be important to a cost-benefit analysis: (1) reductions in expenditures for school remedial services; (2) reductions in criminal justice system expenditures; (3) reductions in child welfare system expenditures; (4) averted tangible costs to victims of crime and child maltreatment; and (5) increased earnings capacity of program participants and tax revenues. Because rates of public assistance were similar for parents in the program and comparison groups, the study did not estimate the benefits of the program for welfare participation.

Estimating benefits and costs

The study distinguished three types of benefits, comparable to the perspectives described by Foster and Holden. These are, first, the benefits returned to children and parents, but not directly to others in society. These benefits are both long-range (e.g., the children would have greater earnings capacity in adulthood, because more would finish high school) and short-range (e.g., child care provided to the parents). Second are benefits to the general public. These include lowered or averted expenditures for remedial education and social welfare programs, reduced criminal justice expenditures because rates of crime and delinquency are lower, and increased tax revenues

as a result of the children's greater earnings capacity. Finally there are benefits to society at large—basically the sum of benefits to program participants and to the general public.

Program benefits and costs were calculated in dollars, converted to 1998 values to adjust for inflation. The present values of future costs and benefits were also computed in 1998 dollars and evaluated at a baseline age of 3, the beginning point of the program for all children. The annual discount rate was set at 3 percent, a rate recommended by the U.S. Public Health Service and the U.S. General Accounting Office; the study also undertook a sensitivity analysis using alternative rates.

Costs

Taxpayer costs were broadly defined: they included all outlays for staff, family, and community support, administration of the program and related school district expenses, instructional materials, transportation and community services, and capital depreciation and interest.

The Chicago Child-Parent Center (CPC) program is, after Head Start, the nation's oldest, federally funded preschool program. Opened in 1967, CPC provides services for children aged 3 to 9 at 24 sites in high-poverty neighborhoods, including, among other things, structured educational activities, extensive outreach and parental involvement, and health and nutrition services. CPC is the subject of a quasi-experimental evaluation, the Chicago Longitudinal Study (CLS), directed by IRP affiliate Arthur Reynolds, which continues to investigate the life course development of over 1,500 children born in 1980. The vast majority of these children from low-income families were black; a small percentage were Hispanic. Almost a thousand of these children were enrolled in the CPC; also included in the study is a comparison group of about 500 low-income children who did not participate in the CPC but attended full-day kindergarten in randomly selected schools in the same Chicago neighborhoods.

A full discussion is A. Reynolds, J. Temple, D. Robertson, and E. Mann, "Age 21 Cost-Benefit Analysis of the Title 1 Chicago Child-Parent Centers," *Educational Evaluation and Policy Analysis* 24, no. 4 (2002): 267–303. Note: "cost-benefit" and "benefit-cost" are equivalent terms.

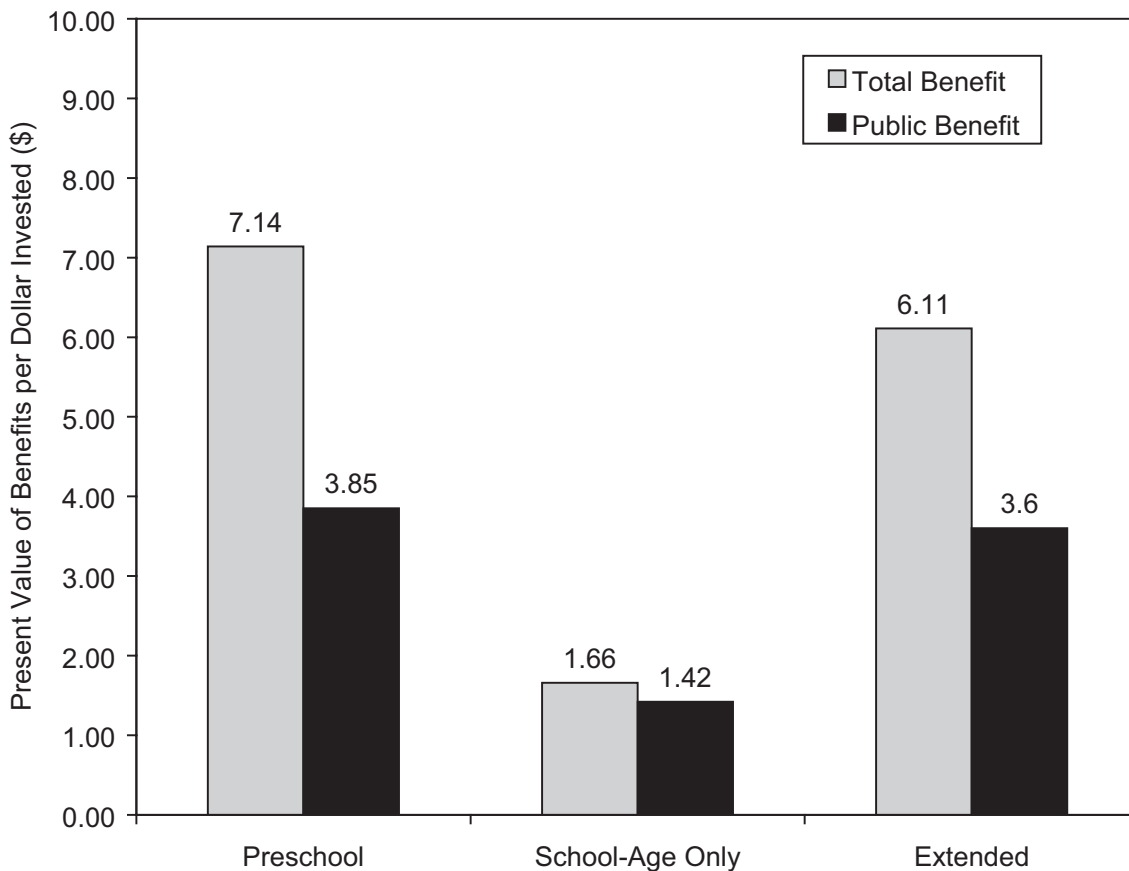


Figure 1. Costs and benefits estimated by the Chicago Longitudinal Study (see box, p. 50) for the Chicago Child-Parent Centers program.

The study did not include the cost for the half- or full-day CPC kindergarten program because the comparison group also participated in a kindergarten program, and costs for these children approximated or exceeded the costs for the CPC kindergarten. Direct costs for the program were supplemented with other costs, including the opportunity costs of parents' participation, based on 10 hours of participation per month at the minimum wage of \$3.35 an hour.

Benefits

The study estimated the savings on school remedial services by using average per-pupil expenditures of the Chicago School District for grade retention and special education placement from kindergarten to grade 12.

Increases in lifetime earnings for ages 18–65 were estimated from the differences in high school completion rates between the program and comparison groups. The calculations were based on multiple data sources—school records and youth surveys, U.S. Census and Department of Labor data for black, full-time workers aged 25–29—and four categories of educational attainment from “less than high school” to “college graduation or more.” The

projections also included estimates of fringe benefits received and taxes paid, all requiring choices among different projected tax rates, real income growth, and benefit packages.

For the criminal justice and child welfare systems, benefits are estimated as savings resulting from reduced crime and abuse rates. Because the strongest predictor of adult crime is juvenile crime, the study projected decreases in expenditures for the adult criminal justice system from juvenile arrests; this required manual and computer searches of court records in Chicago and other cities. Criminal justice expenditures were based on administrative expenses and weighted national averages of the costs of residential or community treatment and incarceration. The study defined crime-victim savings as direct expenditures incurred as a result of delinquent or criminal behavior, exclusive of pain and suffering. Dollar amounts were based on national estimates of tangible losses to victims of violent and property crime.

Savings for the child welfare system were based on court and child protective system data for Chicago. Our measure was the number of referrals (“substantiated reports”) to the juvenile court by the Illinois Department of Child

and Family Services. About 70 percent of children that are the subject of substantiated reports receive in-home services, and the remainder are placed in foster care. To estimate the savings arising from fewer substantiated cases of abuse and neglect, the study used the tangible losses estimated by the National Institute of Justice: medical and mental health care, police and fire services, and lost productivity of victims and their families (work or school missed, and some legal expenses).

A direct benefit to families was the child care provided by enrollment of children in half-day preschool five days a week; the value of parents' free time was estimated at the minimum wage of \$3.35 an hour in 1986 (adjusted for inflation).

For both the preschool program only and the extended (4–6 year) program, the study estimated that just over 40 percent of the social benefits of the program went to program participants; a similar proportion constituted savings to government, and about 15 percent reflected savings to potential victims of crime averted by children's participation in the program.

The benefit:cost ratio for the CPC program

Whether researchers considered the preschool program only, the school-age program only, or the extended program that included both, the estimated ratio of benefits to costs was impressively high (Figure 1). For every dollar invested in the preschool program, the most intensive and comprehensive component, about \$4 were returned to the general public through government savings on school remedial services, criminal justice and child welfare system costs, and averted crime-victim expenditures. About \$7 were returned to society at large through increased economic well-being and reduced public expenditures on educational and social welfare services. The returns were higher for preschool boys than for preschool girls (\$9.06 vs. \$4.67 per dollar invested). The largest share of benefits was attributable to the link of preschool participation with higher rates of school completion and lower rates of juvenile arrest.

The study's estimates are conservative. For example, for victims of crime only tangible savings (arising from property losses, hospitalization, and lost productivity) were measured. Had the study included averted intangible costs such as pain and suffering, the benefits per preschool participant would have risen by over \$20,000 (intangible costs to victims of crime are generally estimated at about three times tangible costs).

In their discussion of the net benefits, the study authors note some limitations. First, the estimates of increased earnings capacity and of cost savings in the criminal justice system were, of necessity, projections. Future eco-

nomie and social conditions are difficult to predict with confidence and could affect the assumptions underlying these projections.

Second, the benefits of some outcomes of the program were not measured—indeed, almost impossible to measure. These include well-documented nonmarket benefits of higher school attainment, such as health status and future family health status, fertility decisions, and even the educational attainment of the children of these children.

Third, causal inference is more difficult in a quasi-experimental than in a rigorously experimental design. Without further study, results should not be generally applied outside the context of urban minority populations and programs with a successful history of implementation. Nevertheless, the results reflect many years of different analyses in which the mechanisms by which the programs effects were achieved have been clarified, minimizing the likelihood that effects may be due to the study sample selected. Encouragingly, the patterns of effect sizes and economic benefits observed in this study are consistent with those of other programs implemented in different contexts and time periods. Our cost-benefit findings, for example, are similar to those reported in studies of the High/Scope Perry Preschool Program and the Prenatal/Early Infancy Project. Findings also compare favorably with the federally funded WIC program.¹

¹These and other programs were discussed in a special issue of *Focus*, Vol. 19:1, Summer/Fall 1997, devoted to the subject of early childhood interventions.

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