

What Does Economics Tell Us About Early Childhood Policy?

An increasing chorus of Fortune 500 CEOs, Federal Reserve Bank analysts, Nobel Prize-winning economists, and other business and economic leaders have led the call to increase public “investments” in early childhood. This call is driven by research findings that increasingly emphasize the importance of laying a strong foundation in early childhood and that show that a range of early interventions can successfully put children on the path toward positive development, preventing poor outcomes in adulthood. These findings—along with increasing recognition in the public-health and social-service sectors that providing program services in early childhood has benefits over treatment later in life—have contributed to the evolution of economists’ support for early childhood investments.

To help decisionmakers in the public and private sectors, service providers, and the public more generally, RAND researchers drew on their decades-long expertise in applying economics to early childhood issues to demonstrate how two economic concepts—human capital theory and monetary payoffs—contribute to a unifying framework that provides evidence-based guidance for early childhood policy. These concepts are summarized in this research brief.

Human Capital Theory

An economic model known as *human capital theory* is a useful, unifying framework that encompasses many of the disparate threads of current thinking about early childhood policy: that later skills build on earlier skills; development occurs over multiple stages; human development involves the interaction of nature and nurture; and human capital, skills, and capabilities involve multiple dimensions.

The fundamental insight is that **human capital theory provides a simple framework that is consistent with observations about skill formation and helps us predict how various policies would be likely to affect skill formation.**

Abstract

Advances in neuroscience, developmental psychology, and program evaluation have been combined to develop a unified framework that provides evidence-based guidance related to early childhood policy. This research shows how insights from the field of economics—human capital theory and monetary payoffs—also contribute to that framework.

A few examples highlight how predictions of human capital theory are consistent with patterns documented in the program evaluation literature:

- *A policy that increases the education level of women would be expected to have a positive impact on their children’s human capital.* In fact, research demonstrates this effect for young children.
- *A program that successfully promotes children’s human capital development would be more effective if it served children in preschool than if it were delayed until after school entry.* This is consistent with research findings that the Chicago Child-Parent Center (CPC) program produced bigger reductions in special education placement and grade retention when provided in preschool rather than elementary school.
- *Conducting screening of children as soon as they enter the foster care system so that they can be referred to mental health services would be likely to promote healthy development and prevent problems later in childhood.* Research suggests that early access to quality mental health services for children in foster care helps reduce emotional disorders in young adulthood and enhance later academic success.

Human capital theory implies that “investments” in the productive capacities of individuals

This product is part of the RAND Corporation research brief series. RAND research briefs present policy-oriented summaries of published, peer-reviewed documents.

Corporate Headquarters
 1776 Main Street
 P.O. Box 2138
 Santa Monica, California
 90407-2138
 TEL 310.393.0411
 FAX 310.393.4818

© RAND 2008

can improve individual outcomes and that these investments might produce the greatest payoffs when made early in individuals' lives. Characterizing the development of human potential as a production process with parallels to other outlays of money and time that would produce returns in the future helps motivate the analysis of the "monetary payoffs" of early childhood programs.

Monetary Payoffs

Perhaps the most widely recognized intersection between economics and early childhood policy is the analysis of the costs and benefits of early childhood programs and related analyses that describe the rate of return on investments in early childhood programs.

The fundamental insight of economics is manifested in a growing body of program evaluations that shows that early childhood programs can generate government savings that more than repay their costs and produce returns to society that outpace most public and private investments.

Table 1 illustrates various child outcomes that may be affected by early childhood programs and the associated monetary savings (or costs) to government (i.e., taxpayers). In addition to the effects on government spending or revenue, the program benefits may also generate private benefits to program participants or other members of society. For example, as shown, increased labor force participation and earnings in adulthood benefit the government by yielding increased tax revenue, but the increased earnings (net of taxes) are also a benefit to the program participant.

In terms of assessing the costs and benefits of early childhood programs, Table 2 summarizes the results of earlier RAND research that examined nine early childhood programs or groups of programs, including programs that provide parent education or home visiting and those that combined parent education or home visiting with early childhood education.

Table 2 shows the age at last follow-up for each program, followed by data on program costs, total program benefits, and net program benefits (benefits minus costs). The final column shows the benefit-cost ratio for each program, calculated by dividing total program benefits by program costs. Thus, for example, the benefit-cost ratio for Home Instruction for Parents of Preschool Youngsters (HIPPY) USA is 1.80 (\$3,032/\$1,681); this means that the program generates a benefit of \$1.80 for each dollar invested in the program.

This analysis shows, first, that early childhood programs can produce benefits that offset their costs but that not every early childhood program does so. Seven of the nine analyses found benefit-cost ratios greater than 1, implying that the benefits outweighed the costs, with a range between \$2 and \$17 in benefits for every dollar invested. However, even for those programs with positive net benefits to society as a whole, when viewed from the government's perspective, not all programs generate net savings sufficient to offset a full public sector investment in program delivery. Future research needs to identify the features of cost-effective programs.

Second, some of the variation in benefit-cost ratios results from differences in the length of follow-up for the

**Table 1
Monetary Savings (or Costs) from Affected Child Outcomes**

Effect on Child Outcome	Monetary Benefits (or Costs) to Government
Reduced child maltreatment	Lower costs to child welfare system
Reduced child accidents and injuries	Lower costs for emergency room visits and other public health care costs
Reduced incidence of teen childbearing	Lower costs for public health care system and social welfare programs
Reduced grade repetition	Fewer years spent in K-12 education
Reduced use of special education	Lower costs for special education
Increased high school graduation rate	(More years spent in K-12 education, i.e., drop-out rate reduced)
Increased college attendance rate	(More years spent in postsecondary education)
Increased labor force participation and earnings in adulthood	Increased tax revenue
Reduced use of welfare and other means-tested programs	Reduced administrative costs for social welfare programs; reduced welfare-program transfer payments
Reduced crime and contact with criminal justice system	Lower costs for the criminal justice system
Reduced incidence of smoking and substance abuse	Lower costs for public health care system and from premature death
Improved pregnancy outcomes	Lower medical costs from fewer low birth weight babies
SOURCE: Adapted from Lynn A. Karoly, M. Rebecca Kilburn, and Jill S. Cannon, <i>Early Childhood Interventions: Proven Results, Future Promise</i> , Santa Monica, Calif.: RAND Corporation, MG-341-PNC, 2005, Table 4.1. As of May 1, 2008: http://www.rand.org/pubs/monographs/MG341/	

Table 2
Costs and Benefits of Selected Early Childhood Programs

Program	Age at Last Follow-up	Program Costs (\$)	Total Benefits to Society (\$)	Net Benefits (\$)	Benefit-Cost Ratio
Comprehensive Child Development Program (CCDP): Case managers provide coordinated services to low-income families with children under 5	5	37,388	-9	-37,397	—
HIPPY USA: Paraprofessionals provide home visits to disadvantaged families with children ages 3–5	6	1,681	3,032	1,351	1.80
Infant Health and Development Program (IHDP): Home visiting and center-based child development program for low birth weight babies from birth to age 3	8	49,021	0	-49,021	—
Nurse-Family Partnership: Public-health nurses provide home visits to low-income first-time mothers from prenatal period to age 2	15	9,118	26,298	17,180	2.88
Home visiting for at-risk mothers and children (meta-analysis): Average effect across 13 home visiting programs	Varies	4,892	10,969	6,077	2.24
Abecedarian Program: Comprehensive, center-based child development program for at-risk children from infancy to age 5	21	42,871	138,635	95,764	3.23
Chicago CPC: Center-based, one- or two-year part-day academic-year preschool program with parent participation	21	6,913	49,337	42,424	7.14
High/Scope Perry Preschool Project: Center-based, one- or two-year part-day academic-year preschool program with home visiting	40	14,830	253,154	238,324	17.07
Early childhood education for low-income 3- and 4-year-olds (meta-analysis): Average effect across 48 preschool programs	Varies	6,681	15,742	9,061	2.36

SOURCE: Adapted from Karoly, Kilburn, and Cannon (2005, Table 4.4).
NOTE: All dollar values are 2003 dollars per child and reflect the present value of amounts over time, where future values are discounted to age 0 of the participating child, using a 3 percent annual real discount rate.

program evaluations and the range of outcomes measured in the evaluations. Higher benefit-cost ratios are associated with programs that have the longest follow-up, such as the Perry Preschool Project, which has followed a group of participants to age 40. The lack of positive net benefits for two of the programs is because there were no significant improvements in the outcomes measured (CCDP) or because the favorable effects were for outcomes that could not readily be expressed in dollar terms (IHDP).

Third, the findings show that a spectrum of program types generated payoffs: small-scale, model programs and larger-scale programs that have been implemented for several decades; very expensive and intensive programs and less expensive ones; and early education programs (i.e., center-based preschool programs) and home visiting ones.

Fourth, there is evidence that returns from early childhood programs decline under certain conditions. For example, while monetary payoffs may still be positive for universal programs, the rate of return may be higher when

programs are targeted toward the groups likely to benefit from them most.

There is a growing recognition that reaping the monetary payoffs of early childhood services is tied to the quality of those services. However, although raising the quality of early childhood services in the public or private sector may be appealing to policymakers, features associated with higher quality almost always require more resources. So with no increase in funding, a shift toward higher quality may entail a reduction in services offered.

Thus, the fundamental insight of economics in discussing early childhood-program quality is that **there is generally a quality-quantity trade-off in early childhood services unless budget outlays grow.**

Given the need to allocate scarce resources, how can policymakers decide who should benefit from their policies? Should they choose families or taxpayers, for example? And there is also the question of whether the policy time frame should be short or long.

Given those considerations, the field of economics also contributes by showing that alternative decisionmaking rules can help when allocating resources:

- **Need based.** In this scenario, policymakers implement policies that focus on outcomes that are particularly bad in the community. For example, if data suggest that child abuse and neglect are higher in a given community than in most other peer communities, then that community might decide to focus on a home visiting program that specifically addresses this issue.
- **Outcome based.** Policymakers may simply prioritize particular outcomes, based on such considerations as the values their constituents have rather than using the comparative rankings of communities on indicators. For instance, the legislature might choose improving the well-being of children in the foster care system as its signature issue and, as a result, focus on implementing programs that target children in foster care.
- **Effectiveness based.** This rule would lead to a policy that chooses the one approach that provides the greatest impact on outcomes for a given level of funding. Thus, based on this rule, the community would select the one early childhood program that provides the greatest dollar benefits for the number of children that can be served with the available funds.
- **Cost-saving based.** This decisionmaking rule requires that programs or strategies produce enough savings to pay back their costs in the long run. In contrast to the effectiveness-based approach, in this case, a program might have the biggest effect on outcomes of all the programs, but, if it did not pay for itself in the long run, it would still not be chosen.
- **Marginal net benefit based.** In this case, policymakers would fund programs or approaches up to the point at which the net benefits to the next person served are equal across programs. This decisionmaking rule would generally result in funding multiple programs up to the levels at which the marginal net benefits were equal.

Economics does not value one of these approaches over another; instead, it provides a framework for selecting optimal service levels given that a community has established its goals and priorities in the early childhood field.

The fundamental insight from economics is that **efficient early childhood policy would include a spectrum of services rather than one “best” approach, and economic theory also provides some guidance about how to choose an optimal level of each type of service or program given the total budget available for all services.**

The efficient portfolio of early childhood services provides the greatest total benefits to the community. Economists would urge policymakers to fund each program or service up to the point at which the last person served by each is generating a similar net benefit. This is true because, if programs were funded at other levels, the total benefits to society could be raised by providing fewer services to families in the program that provided the lower marginal net benefits and more services to families in the program that provided the higher marginal net benefits.

Implications

A common theme that emerges from economic theory and analysis and from other disciplines is the crucial role that early experiences play in laying a foundation for ongoing development and the fact that development is a multiperiod process, with outcomes in each period building on those of the previous period. Both on theoretical grounds and given findings from empirical analyses—including cost-benefit analysis—economic research promotes a reorientation of child and human services toward investment and prevention and away from attempting to “treat” poor outcomes that manifest themselves later in the life cycle. Implementing such an approach would require fundamentally rethinking how nearly every human service is delivered. Shifting toward a paradigm in which resources are invested in early human capital might produce better outcomes, save taxpayers money, and improve the quality of life for the people in whom we invest. ■

This research brief describes work done for RAND Labor and Population that was funded and co-managed by Casey Family Programs and documented in *The Economics of Early Childhood Policy: What the Dismal Science Has to Say About Investing in Children* by M. Rebecca Kilburn and Lynn A. Karoly, OP-227-CFP, 2008, 48 pp., available at http://www.rand.org/pubs/occasional_papers/OP227/. The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark.



LABOR AND POPULATION

THE ARTS
CHILD POLICY
CIVIL JUSTICE
EDUCATION
ENERGY AND ENVIRONMENT
HEALTH AND HEALTH CARE
INTERNATIONAL AFFAIRS
NATIONAL SECURITY
POPULATION AND AGING
PUBLIC SAFETY
SCIENCE AND TECHNOLOGY
SUBSTANCE ABUSE
TERRORISM AND
HOMELAND SECURITY
TRANSPORTATION AND
INFRASTRUCTURE
WORKFORCE AND WORKPLACE

This PDF document was made available from www.rand.org as a public service of the RAND Corporation.

This product is part of the RAND Corporation research brief series. RAND research briefs present policy-oriented summaries of individual published, peer-reviewed documents or of a body of published work.

The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world.

Support RAND

[Browse Books & Publications](#)

[Make a charitable contribution](#)

For More Information

Visit RAND at www.rand.org

Explore [RAND Labor and Population](#)

View [document details](#)

Limited Electronic Distribution Rights

This document and trademark(s) contained herein are protected by law as indicated in a notice appearing later in this work. This electronic representation of RAND intellectual property is provided for non-commercial use only. Unauthorized posting of RAND PDFs to a non-RAND Web site is prohibited. RAND PDFs are protected under copyright law. Permission is required from RAND to reproduce, or reuse in another form, any of our research documents for commercial use. For information on reprint and linking permissions, please see [RAND Permissions](#).