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Investing in young children

> The success of a child is determined by three primary factors: the choices made by the society, primarily the government, regarding the opportunities available to children and their parents (the "social investments in children"); the choices made by the parents regarding the resources to which their children have access (the "parental investments in children"); and the choices that the child makes given the investments in and opportunities available to him or her.[1]

The discussion of children's attainments in terms of "choices" and "investments" is perhaps more familiar in the economic literature than in studies of child development, yet it provides a useful conceptual framework for understanding how decisions about and for children are made.

The choices made by parents are a crucial and primary influence on how children develop and what their future achievements will be. In making choices that reflect sometimes conflicting objectives, families make decisions concerning household size and structure, consumption and saving levels, work and leisure, and allocation of income and time.[2] Even more basically, parents choose the sort of nurturing, monitoring, disciplinary,

Early childhood development (defined as occurring from birth, or before birth, through ages six to seven) is increasingly being viewed as the foundation of adolescent and young adult cognitive and emotional functioning. Evidence of the current, widespread interest in understanding and enhancing early development includes the Carnegie Corporation's recent pair of reports, *Starting Points* (1994) and *Years of Promise* (1996), the creation in 1990 of a National Education Goals Panel and the Goals 2000 legislation of 1994 (centering on the goal that "by the year 2000 all children will start school ready to learn"), and President Clinton's Early Childhood Initiative. A theme common to each of these endeavors is the importance of early experiences—especially supportive relationships and intellectual stimulation—for later development.

The early years are believed to offer perhaps singular opportunities for intervention and prevention efforts. Typically, the aim of such efforts is to assist young children enter school prepared to take advantage of learning experiences. This goal is often labeled "readiness to learn." Early childhood education programs have been developed and evaluated with this goal in mind. Many programs focus on children who come from poor families, who have parents with little education, who are biologically vulnerable, or who have a combination of these characteristics.

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and expectational environment in which their children are raised. Taken together, these choices determine the level of parental investment in children.

Parents make their decisions within a basic environment established by society, with government as its agent. Government employs a wide variety of policy instruments—taxing, spending, and regulatory policies, judicial pronouncements, moral suasion—to influence the way parents raise their children. The investments by government entail both costs and benefits, and government chooses among these options to maximize its own objective ("collective well-being," however defined), subject to economic and political constraints that reflect the collective tastes of its citizens.[3] Government's investments affect children's attainments indirectly, through their effects on home (or parental) investment, and directly, through the provision of certain levels and types of schools or the assurance of health care, for example.

The range of public or government investments in the future of today's children includes counseling of parents while they are expecting a child, income transfers, health and education programs, family literacy programs, programs for preschool children, for elementary school children, for adolescents. In the language of child development studies, particular programs are often called "interventions." Government interventions have sometimes been extremely far-reaching: one set of programs involves moving families to higher-income neighborhoods, with all of the implied changes in available social capital, public expenditures on schooling, and community norms.[4]

This issue of *Focus* is directed at improving our knowledge of a subset of these investments, primarily those directed to families with children under the age of eight. As knowledge of the crucial importance of the early developmental years has grown, such programs have been actively explored.[5] In general, there are many unanswered questions and misconceptions about early childhood programs.[6] Which are effective and which are not? Which could pass a benefit-cost analysis and which not? The articles here pay particular attention to long-term outcomes for children who are at significant risk for reasons noted below. They are not restricted only to research into the major early childhood programs, private or governmental, model or large-scale, but have cast a wider net. They include work that looks at early risks and predictors of later failure (pp. 26–27, 34–36), that explores multiple approaches to solving the same problem (pp. 37–44), that considers different ways of measuring effects and differing responses among participants.

Different sources of risk may interact to have very destructive effects on children's prospects, as is amply demonstrated in these articles. Such trajectories of risk may begin very early in a child's life. The factors that seem to place children at high risk are generally categorized into three types: biological, familial, and community based.

Biological factors include prematurity and low birth weight, or the presence of a significant disabling condition (pp. 12–17, 52–55). Familial factors are manifold. They include limited parental education, child-rearing skills, and expectations for children. At the extreme, there may be maltreatment or abuse, physical and psychological. Parental investment of time may be limited, because of the constraints of employment (pp. 48–50), because the resident parent is single and the nonresident parent uninvolved, or because there is a high ratio of children to adults in the family. Frequent family moves may handicap children's formation of social networks and school achievement. Community factors may include the physical hazards of poor housing, high crime rates, or a school district with low expenditures per pupil (pp. 26–27).

The significance of many risks is not well established. Many may be secondary manifestations of resource limits occasioned by the limited human capital of parents. For many children who grow up in a poor or near-poor family, there simply are not the resources to meet not only basic physical needs but also less tangible, though equally crucial, emotional and cognitive needs—emotional support, intellectual stimulation, appropriate preparation for school. Evidence is increasing that extended exposure to prolonged periods of poverty, and the resulting limited resources and stress, in particular may be detrimental to the lifelong chances of success for children.[7]

What does seem clear is that as long as some children have far less in the way of parental investment in them, society has an opportunity, if not an obligation, to try to equalize their opportunities for future success. ■

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[1]R. Haveman and B. Wolfe, *Succeeding Generations: On the Effects of Investments in Children* (New York: Russell Sage Foundation, 1994), p. 26.

[2]The term "choice" is used by economists in full recognition of the constraints under which people exercise their choices. These include information constraints, which may mean that parents may perceive only dimly the consequences of choices that they make, and the constraints imposed in some cases by social (governmental) decisions. For example, some parents are constrained in what they earn or whether they work by the quality of education made available to them by the public school system when they were growing up, or by the failure of public macroeconomic policies to ensure full employment. The maximizing framework that underlies the decisions made by society and parents also applies to the decisions made by children themselves. That issue is not pertinent to early childhood, but see Haveman and Wolfe, *Succeeding Generations*, pp. 32–36.

[3]Governmental decisions set not only the economic but also the social and cultural environment and make clear society's standards and expectations for minimally acceptable behavior and performance; current public admonitions designed to reduce the prevalence of nonmarital teen births are an example.

[4]These are the Moving to Opportunity programs, briefly described in J. Goering and J. Feins, "The Moving to Opportunity Social 'Experiment': Early Stages of Implementation and Research Plans," *Poverty Research News* (newsletter of the Northwestern/University of Chicago Joint Center for Poverty Research) 1, no. 2 (Spring 1997): 4–6.

[5]For an outline of the current discussions on children's early development and links to further reading, see J. L. Aber, "Poverty and the Baby Brain Drain," *National Center for Children in Poverty News and Issues* 7, no. 1 (Summer 1997): 6–7. An extremely thorough review and tabulation of early childhood interventions is *Long-Term Outcomes of Early Childhood Programs*, *The Future of Children* 5, no. 3 (Winter 1995). The establishment of a Federal Interagency Forum on Child and Family Statistics is another indication of high national interest. The Forum published its first report, *America's Children: Key National Indicators of Well-Being*, in spring 1997. The interest in early childhood issues is not confined to the United States, as the article by Asher Ben-Arieh on pp. 61–64 shows. A web site that links to global initiatives is that of the Consultative Group on Early Childhood Care and Development: http://ecdgroup.harvard.net/ The web site for the National Education Goals Panel mentioned on p. 2 is at http://www.negp.gov/.

[6]These are addressed in the following article by Arthur Reynolds. Some early "scientifically based" interventions, indeed, would not pass the classical physician's test ("First, do no harm"). One notorious example is the Cambridge-Somerville experiment. See J. McCord, "The Cambridge-Somerville Study: A Pioneering Longitudinal Experimental Study of Delinquency Prevention," in *Preventing Antisocial Behavior: Interventions from Birth through Adolescence*, ed. J. McCord and R. E. Tremblay (New York: The Guilford Press, 1992), pp. 196–204.

[7]See G. Duncan and J. Brooks-Gunn, eds., *Consequences of Growing Up Poor* (New York: Russell Sage Foundation, 1997).

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Early Childhood Intervention: Relevant Articles

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The state of early childhood intervention: Effectiveness, myths and realities, new directions

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Early childhood interventions are now a popular strategy for counteracting social problems. They have high funding priority at all levels of government and strong support in local communities. Programs such as Even Start, Early Head Start, and other two-generational programs (that is, programs involving both mothers and children) have received considerable attention in the public and academic media. But there are many misunderstandings about what these programs are intended to do and what they have done. In this article, we review what is currently known about the effects of early childhood interventions for low-income and at-risk families, discuss some myths and realities, and highlight directions for future research and program development.

Early childhood intervention is a general descriptor for a wide variety of programs. For this article, it is defined as the provision of educational, psychosocial, and health services, during any of the first eight years of life, to children who are at risk of poor outcomes because they face social-environmental disadvantages or have developmental disabilities. These interventions are compensatory; they are designed to prevent problematic behavior such as academic underachievement, low motivation, or school failure in populations at risk. We focus primarily on programs for economically disadvantaged children aged about 2½ to 5. Such programs constitute the largest array of early childhood interventions.

The assumptions of early childhood intervention

Four assumptions guide early childhood interventions for the economically disadvantaged. The first and most basic is that the environmental conditions of poverty are often insufficient to promote healthy development in children. Without this assumption, there would be little need for intervention. Poverty is associated with a wide range of childhood difficulties, including school underachievement, poor nutrition, delinquency, and low educational attainment.

The second assumption is that educational and social enrichment can compensate for disadvantages brought about by poverty and its associated ills. Child, family, and health services may allow children to start school more ready to learn and may close the gap between their performance and that of their more economically advantaged peers. The assumption that environmental risks could be compensated for was a foundation for many programs of the War on Poverty, not only for early childhood programs.

The third assumption is that children will be more likely to experience later success in school if early intervention occurs. Educational success is a central mechanism of occupational success, and it is crucial to the theory of early intervention. Most program designers and researchers expect that success will be both short-term and long-term; they typically measure it through cognitive development, motivation to succeed, school achievement, and educational attainment. But the early and optimistic belief that a relatively brief program could produce large improvements in cognitive and social functioning was overdrawn. Indeed, effects are expected to vary as a function of child and family attributes, the quality of the program, and the postprogram environments into which children enter.

The fourth assumption is that longer-lasting effects can be achieved by extending intervention into the primary grades. Low-income children experience multiple risk factors and many early childhood interventions are complex packages. Extra educational and family support during the sensitive and critical transition to formal schooling provides greater opportunities for learning, promotes continuity, and should enhance children's scholastic and social functioning.

A brief history: Head Start and later

The rise of early childhood intervention as a social program began with the creation of Project Head Start in the summer of 1965. This federally initiated program provided the foundation for many later interventions in both the preschool and school-age years. Head Start is a comprehensive child-development program primarily for preschool-age children in families below the poverty line (see box, page 6). Although local grantees have

Head Start in 1996

Major goal: To enhance social competence, primarily school readiness, health and nutrition, and social psychological development

Target group: Poor children aged 3 to 5 and their parents; Head Start also serves children with disabilities who are not poor

Number served: 752,077 children at ages 3 (29%), 4, (62%), and 5 or older (6%)

Major components: Education, health/nutrition, social services, parent involvement

Median duration: One year

Major beneficial effects: Enhanced school readiness; reduced grade retention and special education; improved physical health/nutrition

Expenditures: $3.57 billion (federal) and $710 million (local match) (20% of federal)

Average cost per child: $4,571

Grantees: Community action program (35%); private nonprofit agencies (35%); schools (19%); 1,440 grantees in 16,636 centers and 42,500 classrooms

Staff: 146,200 paid staff and 1,239,000 volunteers

Some characteristics of the children: 36% black, 32% white, 25% Hispanic, 6.5% Asian or American Indian;12.8% of children have disabilities; 77.7% of families have incomes of less than $12,000 a year

Source: U.S. Department of Health and Human Services, Administration for Children and Families, Head Start Bureau.

wide flexibility in program structure, the modal Head Start program is a center-based, half-day program for 4-year-olds.

From the beginning, such interventions emphasized comprehensive services—center-based early education, multifaceted family participation (i.e., training, education oversight), and physical health and nutrition services. This "whole-child" philosophy remains the same today.

There is now consensus among early childhood educators and analysts alike that the primary goal of early childhood intervention is social competence. This can be defined generally as everyday effectiveness in meeting family, school, and individual responsibilities. Edward Zigler, one of the developers of Head Start and a leading developmental researcher, has identified four components of social competence: (1) physical health and nutrition, (2) cognitive ability (as measured, e.g., by IQ tests), (3) school performance and achievement, and (4) social psychological development (e.g., motivation, self-esteem, attitudes).[1] We could also add family outcomes (e.g., parent-child relations, parent involvement), though these are usually viewed as penultimate to children's outcomes. These components form a framework for the discussion in this article.

Effects of early childhood intervention: What is known

The hundreds of studies of demonstration and large-scale programs that now exist provide very strong evidence that most programs of relatively good quality have meaningful short-term effects on cognitive ability, early school achievement, and social adjustment. There is also increasing evidence that interventions can produce middle- to longer-run effects on school achievement, special education placement, grade retention, disruptive behavior and delinquency, and high school graduation. Debate about the nature of the very long term effects continues, however. The cognitive and social benefits for children are in addition to the physical health, nutrition, and family benefits associated with program participation.[2]

No one curriculum model or philosophy stands out as the most successful prototype. Many different programs and approaches have been effective within the principle of comprehensive services. These include structured, cognitively oriented programs, basic-skills programs, family-support programs, half-day and all-day programs, programs that start in infancy, and programs that begin during preschool. Roger Weissberg and Mark Greenberg characterize programs that have been associated with persistent effects thus:

> [Such programs include] a developmentally appropriate curriculum based on child-related activities, teaching teams that are knowledgeable in early childhood development and received on-going training and supervision, class size limited to fewer than 20 3-to-5-year-olds with at least two teachers, administrative leadership that includes support for the program, systematic efforts to improve parents as partners in their child's education, as well as sensitivity to the non-educational needs of the child and family, and evaluation procedures that are developmentally appropriate.[3]

To give some general overview of this voluminous research, we undertook what we might call a "review of reviews." We identified 15 reviews, published between 1983 and 1997, that integrate the findings of hundreds of

Table 1
Reviews of Early Childhood Intervention Programs (1983–1997)

Review Author	Source[a]	Number of Program Studies Reviewed: Total	Large Public Programs	Model Programs	Head Start Programs	Years Studies Published	Number Studies in Which Effects Reported: Short-Term[b]		Long-Term[b]	
Barnett	Behrman, ed., *Future of Children* 1995	36	5	14	17	1962–85	13	(11)	26	(20)
Barnett	*J. Human Resources* 1992	22	3	7	12	1983–84	22	(22)	7	(4)
Bryant & Maxwell	Guralnick, ed., *Effectiveness of Early Intervention* 1997	12	3	8	1	1985–86	10	(9)	5	(5)
Farran	*Handbook of Early Childhood Intervention* 1990	32	2	28	2	1977–86	13	(8)	8	(2)
Goldring	*Education Evaluation and Policy Analysis* 1986[c]	8	0	6	2	1973–78	2	(2)	8	(6)
Haskins	*Am. Psychologist* 1989	16	0	9	7	1982–87	2	(2)	14	(9)
Karweit	*Preventing Early School Failure* 1994	6	0	6	0	1988–90	0		0	
Locurto	*Intelligence* 1991	2	0	10	2	1982–88	1	(1)	4	(4)
Royce et al.	Consortium, *As the Twig Is Bent* 1983[c]	11	0	9	2	1983	7	(7)	7	(7)
Schweinhart	*Significant Benefits* 1993	11	4	7	0	1981–93	2	(2)	5	(2)
Seitz	*Annals of Child Development* 1990	8	0	8	0	1972–88	8	(8)	4	(4)
White	*J. Special Education* 1985[c]	300	0	1	0	1937–84	0		0	
Woodhead	*Am. Psychologist* 1988	5	0	4	1	1983–85	3	(3)	5	(4)
Yoshikawa	Behrman, ed., *Future of Children* 1995	4	0	4	0	1974–93	0		4	(4)
Zigler et al.	*American Psychologist* 1992	6	0	6	0	1972–83	6	(6)	6	(6)

Note: Haskins (1989) identifies 7 Head Start Synthesis Programs and 9 studies outlined in the Consortium. Locurto (1991) does not specify studies within the Consortium. White (1985) does not identify individual studies. Woodhead (1988) does not specify studies with in the Head Start Synthesis. All reviews are in narrative form, except as indicated in note a. "Short-term" is defined as 1–3 years after program participation, "long-term" as 4 years or more after program participation. In the last two columns, values reflect approximate calculations based upon the individual study's definition of variables relating to short- and long-term effects.

[a]For full citations, see the list of relevant articles, p. 4.

[b]Number of positive reviews in parentheses.

[c]Meta-analysis; In *As the Twig Is Bent*, only 9 in meta-analysis.

program evaluations since the middle 1960s (see Table 1). This review led to two immediate conclusions.

First, in contrast to a decade ago, there is substantial support for longer-term effects on children's development, especially for school competence (e.g., children are less likely to be retained in grade and placed in special education). The majority of studies reviewed in Table 1 support both short-term and longer-term effects—those lasting more than three years. Examining such programs, W. S. Barnett has concluded that "early childhood programs can produce large short-term benefits for children on intelligence quotient (IQ) and sizable long-term effects on school achievement, grade retention, placement in special education, and social adjustment."[4] Others agree, but Barnett's conclusion is at odds with the popular view that the effects of intervention fade out.

Although the reviews in Table 1 indicate that participation in early childhood intervention is consistently associated with positive child outcomes, they do not speak to the size of the reported effects. Here, we shall merely highlight evidence from three reviews. Royce and his colleagues, reporting on randomized projects in the Consortium for Longitudinal Studies, found an average improvement equivalent to about 8 IQ points when children were tested after the end of the program in which they participated. In comparison with findings from most social programs, this is a medium to large effect. When children were aged 9, the average effect of program participation was modest but remained significant,

Table 2
Most Frequently Cited Early Childhood Intervention Programs from Research Reviews (1983–1997)

Program	Type	Major Child Outcome Measures	No. Citations
High/Scope Perry Preschool Program	Model	School achievement, grade retention, HS graduation, delinquency	13
Houston Parent Child Development Center	Model	School achievement, socioemotional functioning, conduct disorders	8
Carolina Abecedarian/Project CARE	Model	Cognitive development, school attainment, grade retention	8
Early Training Project	Model	Special ed. placement, grade retention, HS graduation	7
Syracuse Family Development Research Program	Model	Socioemotional functioning, school attainment, delinquency	7
Consortium for Longitudinal Studies	Model	Cognitive development, special ed. placement, school achievement	6
Milwaukee Project	Model	Special ed. placement, grade retention	6
Philadelphia Project	Model	School achievement	6
Yale Child Welfare Research Program[a]	Model	Language development, school attainment, school attendance	6
Harlem Training Project	Model	Special ed. placement, grade retention, math achievement	5
Louisville Experiment (Head Start)	Model	Cognitive development, grade retention	5
Chicago Child-Parent Centers	Large Scale	Academic achievement, special ed. placement, grade retention	4
New York State Experimental Prekindergarten	Large Scale	Special ed. placement, grade retention	4
Head Start Synthesis Project	Large Scale	Health, cognitive & socioemotional development, school readiness	3
Mother-Child Home Program	Model	School achievement, special ed. placement, grade retention	3
Gutelius Child Health Supervision Study[ab]	Model	Cognitive development, health, behavior	3
High/Scope Preschool Curriculum Comparison Study	Model	School achievement, delinquency	2
Gordon Parent Education Infant and Toddler Program	Model	Cognitive development, special ed. placement, school competence, educational attainment	2
New Haven Follow-Through Study	Large Scale	School achievement	2
Univ. of Rochester Nurse Home Visiting Program[ab]	Model	Health	2
Verbal Interaction Project	Model	School achievement, special ed. placement	2

[a] Intervention program was family focused and child outcomes were measured at time of follow-up.
[b] Positive family outcomes were found in addition to positive child outcomes at time of follow-up.

equivalent to about a 4-month gain on standardized achievement tests. White's meta-analysis of 300 studies of both model and large-scale programs indicated a similar pattern of effects. In 36 programs reviewed by Barnett, participation in early childhood intervention was associated with a 31 percent reduction in the rate of grade retention, a 50 percent reduction in special education placement, and a 32 percent reduction in high school dropout (but this last result is for only four studies).[5] Some individual programs, such as the experimental High/Scope Perry Preschool (one of the very few to have adulthood data), have indicated relatively large beneficial effects into young adulthood for a variety of educational and economic outcomes.

The second conclusion of these reviews is that the vast majority of the empirical evidence comes from model programs (Table 2). Of the 21 programs most frequently cited in the research reviews, 17 were demonstrations, not large-scale public-service interventions. Moreover, 89 percent (93 of 104) of citations from the research reviews referenced model programs. No modal Head Start program appears among frequently reviewed programs, although the Head Start Synthesis project does.[6]

This raises two methodological issues. The first is sample size. The median sample size of the individual studies reviewed by Barnett was 140 children for the model programs and 662 children for the large-scale programs.[7] These numbers are not large, especially when considering attrition rates of up to 50 percent in follow-up assessments. The second issue is research design. In the 15 model and 21 large-scale programs that Barnett reviewed, children were randomly assigned to the intervention in only 6, all of them model programs. Three of those had high rates of sample attrition during follow-up assessments, as did 9 of the 21 large-scale programs. Nor, for many of the large-scale programs, was the equivalence of program and comparison groups well demonstrated. This may complicate interpretation of the results. But because the comparison group in many early intervention studies is likely to be more advantaged than the program group (the most disadvantaged have priority in enrollment), any bias in program effects would probably be in the direction of showing no effects.

There is actually a sizable amount of evidence supporting the beneficial effects of Head Start programs. Head Start participants have higher rates of immunization and access to preventive health services. On average, they significantly outperformed their comparison-group peers in cognitive ability, earlier school achievement, motivation, and social behavior up to two years after program participation. Head Start graduates were also less likely to be retained in grade or receive special education services.[8] But the evidence for very long term effects (adolescence and beyond) is very limited—surprising, given that Head Start begins its thirty-third year of operation in the fall of

1997. This lacuna is symptomatic of the low investment in research on social programs. For example, in fiscal 1996 only one-third of 1 percent (0.34 percent) of the federal expenditure for Head Start was used for research and evaluation. We suspect other programs fare no better.

Although such findings have placed early childhood interventions relatively high among government funding priorities, debates continue over optimal program content, the timing and duration of interventions, the differential effectiveness of model and large-scale programs, and the extent to which programs can raise children's attainments to the level of more advantaged peers.

Myths about early childhood intervention programs

The evidence that we have just outlined should help to correct major misconceptions about early childhood intervention. Here we highlight four of them.

Myth 1: Cognitive development is the key program outcome

Since the early evaluations in the 1960s, there has been a preoccupation with the cognitive effects of early childhood interventions, and especially with performance on intelligence tests. The 1994 book *The Bell Curve* provides a recent example of the misplaced emphasis on intellectual aptitude.[9] Social competence is the primary goal of early childhood interventions, and cognitive development is only one of many indicators. (Others include motivation to achieve, health status, school readiness, school performance, educational attainment, self-esteem, and attitudes toward school.)

An unfortunate consequence of the overreliance on measures of cognitive ability is that the perceived effects of early interventions become narrowly defined. The widely reported finding that the effects on cognitive ability of early childhood intervention fade out, for example, has been generalized to other outcomes. In fact, program effects on the incidence of grade retention and special education do not fade. The early cognitive effects of participation in the program carry over to school competence, thereby resulting in longer-term effects.

Myth 2: Program participation inoculates children from continuing disadvantages

Policy makers and the public have very high expectations for early childhood interventions, partly because, over the years, program designers and researchers have promised too much. Participation in a one- or two-year program has often been expected to produce very large gains in cognitive functioning and school achievement and ultimately to reduce poverty. When programs fail to live up to these original expectations, they are seen as ineffective.

A one- or two-year preschool program, just like one or two years of good parenting, cannot ameliorate all present and future difficulties. Just as there are no teacher-proof curricula, so too the effects of early childhood interventions are not environment-proof. Edward Zigler and Sally Styfco commented that "early intervention cannot overpower the effects of poor living conditions, inadequate nutrition and health care, negative role models and substandard schools."[10] Early interventions can, however, provide children with a good foundation for school success and increase their chances for more productive lives.

Finally, if school and family environments play a significant role in the maintenance of long-term effects, then the program cannot alone be held responsible if the effects of early childhood intervention dissipate over time. Intervention that continues as children move through the early elementary grades may help to extend these effects, as results from the Chicago Child-Parent Centers and Expansion Program suggest (see pp. 18–21).

Myth 3: Early childhood programs are homogeneous in design and effectiveness

A third misconception about early childhood interventions is that they are uniform in design, structure, and even effectiveness. It is widely believed, for example, that government-funded programs (and most of these interventions are) must follow precise regulations and that local program staff and families have little influence over program content. This is not the case. Although committed to the goal of social competence, early childhood interventions are heterogeneous; they vary widely in organization, structure, content, and curricula. Typically, grantees and program staff have wide flexibility in program design, implementation, and content. Programs implemented in rural communities, for example, often follow a home-based intervention model rather than a center-based one. Program directors, in conjunction with staff and families, also may decide for themselves the number of years of service to provide, whether the program will be half-day or all day, and how structured its content will be. Curriculum materials are also usually determined locally. Certainly, program quality and implementation vary as well, especially for large-scale government-funded programs.

One consequence of this misconception is the belief by many policy administrators that providing any intervention to larger numbers of children is preferable to providing the best possible (often most comprehensive) intervention to smaller numbers. This is understandable, given the large percentage of eligible children who are not served in early childhood programs. But all programs are not the same. Intensity, comprehensiveness, and quality of implementation matter most. If only good-quality programs meeting the multiple needs of children and family have lasting effects, then generic, low-cost programs are not likely to be effective.

Myth 4: The population of at-risk children in these programs is homogeneous

Like the programs themselves, the population of at-risk children served defies easy description. Among the categories that make most children eligible for early intervention services are developmental disabilities (e.g., mental retardation, learning disabilities), low family income, neighborhood poverty, educational need, and child neglect or abuse. Even individual programs with a specific target population enroll children whose needs vary. For example, in 1996, 12.8 percent of children in Head Start had developmental disabilities and about 5 percent lived in families with incomes above the federal poverty level (see box, p. 6). The structure, organization, and content of programs need to take into account the heterogeneous attributes of the children they serve. Moreover, programs may not be equally effective for all children.

Future directions for research and program development

Despite the advances in our knowledge, important issues of early childhood intervention have not been fully examined. The first generation of research was primarily concerned with whether intervention was effective.[11] The task of the second generation is to determine who benefits most and what program and environmental conditions maintain or strengthen effects. We discuss five new directions for research that have direct implications for program development.

What are the long-term effects of large-scale programs?

The existing evidence on this issue is inadequate to inform public policy. It cannot be too often repeated: *most of the evidence on long-term effects reaching into high school comes from small-scale, model programs that differ in significant ways from large-scale, established public programs*.[12] Of 21 public programs reviewed by Barnett, for example, only 7 presented evidence through the elementary grades and only 3 followed participants into high school or beyond.[13] In contrast, 8 of 15 studies of model programs followed participants to eighth grade or beyond, and 5 of these went beyond high school. Model programs are usually more expensive to operate than large-scale programs, have larger and better trained staffs, and are rarely implemented in inner-city communities. Their evaluations are limited in statistical power and generalizability. They show how effective early interventions *can be*, whereas policy makers and the public are most interested in knowing how effective current large-scale programs *are*. In a time of intensive fiscal accountability at all levels of government, research on the effects of large-scale programs is needed more than ever.

A related issue is the scope of outcomes tested. Of only 11 studies investigating effects on antisocial and delinquent behavior, just four showed that program participation reduced delinquency. All four provided both early education and family support services.[14] No evidence of effects on delinquency has been reported for large-scale, government-funded programs. Neither social psychological outcomes (i.e., attitudes, competence perceptions) nor family outcomes have been adequately tested in longitudinal studies of large-scale programs.

What is the optimal duration and timing of intervention exposure?

There is substantial support for the principle that the earlier intervention occurs, the more likely it is to be effective, but this question has rarely been investigated.[15] Nor do we know if programs that extend intervention into the primary grades yield more long-lasting effects than programs that stop in preschool or kindergarten. Developmental theory would indicate that additional environmental support during the transition from preschool to formal schooling can be important. Recent studies indicate that school-age programs can be effective as a supplement to earlier intervention.[16] It will be helpful to determine how generalizable these programs are. One complication is the likelihood that the effects of the timing and duration of a program may depend, at least in part, on the quality of that program.

Who benefits most from intervention?

Because of the compensatory nature of early interventions, it is often believed that children and families at greatest risk should benefit more from participation than those at lesser risk. Very few studies have systematically investigated program interactions with the characteristics of children or families within participant populations. For the most part, there is little support for differential program effects according to child and family characteristics. Some studies of model programs report that girls in the program have higher achievement test scores than boys, but not by wide margins.[17] Few studies have examined whether the effectiveness of a program varies by its attributes (e.g., organizational structure, curricula, or characteristics of the target population) or community context.

What are the mediators (pathways) of program effectiveness?

Once a direct relationship is established between participation in a program and long-term outcomes, the factors or pathways that produce (mediate) this effect must be identified. At least three hypotheses have been postulated to explain the longer-term effects of early childhood intervention. In the *cognitive advantage hypothesis*, the immediate, positive effect of program participation on cognitive development when a child enters school initiates a positive cycle of scholastic development and commitment that culminates in improved child outcomes. In the *family-support hypothesis*, the

effects of intervention will be maintained to the extent that family functioning has been improved. In the *school-support hypothesis*, the effects of early intervention will be maintained to the extent that the postprogram schools which children attend are of sufficient quality to meet their scholastic and developmental needs.

Research on the pathways of intervention effectiveness adds to basic theoretical knowledge of how early interventions exert their effects over time in conjunction with other influences. And it is useful in helping to design and modify intervention programs for children and families, explaining, for example, why programs may not have yielded the effects expected.

Investment in evaluation research

If there is a truism about social programs, it is that good programs require commitment to evaluation and monitoring. Programs are rarely at their best in their first two years. Indeed, designers and evaluators have learned the hard lesson that programs are rarely implemented as well as they could be, and that systematic evaluation is the most efficient way to improve them. Private corporations spend up to 10 percent of their budgets on research and development. Research spending on Head Start has varied from 2.5 percent in 1974 to 0.11 percent in 1989.[18] Greater and more stable levels of research funding are necessary for effective program development and improvement. The Head Start experience suggests that such evaluation and research activities be funded at 2 percent of their yearly program budgets.

In the notes, full references are given only for works not included in the list of relevant readings on early childhood interventions (p. 4). ■

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[1]E. Zigler and P. K. Trickett, "IQ, Social Competence, and Evaluation of Early Childhood Intervention Programs."

[2]See particularly R. Haskins, "Beyond Metaphor"; McKey and others, *The Impact of Head Start*; White, "Efficacy of Early Intervention"; W. S. Barnett, "Long-Term Effects of Early Childhood Programs on Cognitive and School Outcomes," *The Future of Children* 5, no. 3 (1995): 25–50; Consortium for Longitudinal Studies, *As the Twig Is Bent*; Schweinhart, Barnes, and Weikart, *Significant Benefits*; E. Zigler, C. Taussig, and K. Black,"Early Childhood Intervention: A Promising Preventative for Juvenile Delinquency," *American Psychologist* 47, no. 8 (1992): 997–1006; Zigler and Styfco, ed., *Head Start and Beyond.*

[3]Weissberg and Greenberg, "School and Community Competence-Enhancement," p. 41.

[4]Barnett, "Long-Term Effects," p. 25. Socioemotional outcomes have been investigated much less frequently, but the research that does exist suggests a similar pattern of findings. The evidence regarding the effectiveness of center-based and family-support services in preventing delinquency and antisocial behavior is reviewed elsewhere in this issue (see "Do Intervention Programs for Young Children Reduce Delinquency and Crime?").

[5]J. M. Royce, R. B. Darlington, and H. W. Murray, "Pooled Analysis: Finding across Studies," In Consortium for Longitudinal Studies, *As the Twig is Bent*; White, "Efficacy of Early Intervention"; Barnett, "Long-Term Effects."

[6]McKey and others, *The Impact of Head Start*. The Head Start Synthesis Project is a meta-analysis of individual research studies.

[7]These numbers include children in the program plus any control group of children, before follow-up studies were undertaken. Barnett, "Long-Term Effects."

[8]McKey and others, *The Impact of Head Start*; Haskins, "Beyond Metaphor"; E. Zigler and S. Styfco, "Head Start: Criticisms in a Constructive Context," *American Psychologist* 49 (1994):127–32; E. Zigler, C. Piotrkowski, and R. Collins, "Health Services in Head Start," *Annual Review of Public Health*, 1994; J. Currie and D. Thomas, "Does Head Start Make a Difference?" *American Economic Review* 85 (1995): 341–64; General Accounting Office, *Head Start: Research Provides Little Information on Impact of Current Program*. Report GAO/HEHS-97-59, April 1997. For an example, see, in this issue, the article by Currie and Thomas, "Does Head Start Help Hispanic Children?"

[9]For a discussion of *The Bell Curve*, by R. Herrnstein and C. Murray, see *Focus* 17, no. 2 (Fall/Winter 1995), pp. 23–27.

[10]Zigler and Styfco, "Head Start: Criticisms," p. 129.

[11]Guralnick, *Effectiveness of Early Intervention.*

[12]D. Crum, "A Summary of the Empirical Studies of the Long-Term Effects of Head Start," unpublished ms., Pennsylvania State University, 1993; Haskins, "Beyond Metaphor"; White, "Efficacy of Early Intervention"; Woodhead, "When Psychology Informs Public Policy"; Zigler and Styfco, *Head Start and Beyond.*

[13]Barnett, "Long-Term Effects."

[14]H. Yoshikawa, "Long-Term Effects of Early Childhood Programs on Social Outcomes, and Delinquency," *The Future of Children* 5, no. 3 (1995): 51–75.

[15]Ramey and Ramey, "Early Educational Intervention with Disadvantaged Children."

[16]Reynolds, "Effects of a Preschool Plus Follow-on Intervention"; A. J. Reynolds and J. A. Temple, "Extended Early Childhood Intervention and School Achievement: Age 13 Findings from the Chicago Longitudinal Study," *Child Development,* in press.

[17]Lazar and others, *Lasting Effects of Early Education*; Barnett, "Long-Term Effects."

[18]Zigler and Muenchow, *Head Start.*

Early intervention, cognition, and school achievement: Findings from two generations of model programs

> How humans develop and learn depends critically and continually on both nature (an individual's genetic endowment) and nurture (the surroundings, care, stimulation, and teaching that are provided or withheld). The roles of nature and nurture in determining intelligence cannot be weighted quantitatively: genetic and environmental factors have a more dynamic, qualitative interplay that cannot be reduced to a simple equation.
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> Families and Work Institute, *Rethinking the Brain: New Insights into Early Development* (1997)

Early childhood programs have, since the 1960s, gone through a series of iterations, or what some have called "generations." Curricula have been expanded, refined, and changed; the intensity and duration of programs have been altered; and the mode of delivery (i.e., center-based care versus home visiting) has been experimentally tested.[1] This article reviews findings from two model early childhood programs, both of which offered a combination of home visiting and center-based care that began in the child's first months of life.

The Carolina Abecedarian Project was developed by Craig Ramey and began in 1972. The Infant Health and Development Project (IHDP) was developed partly on the basis of the Abecedarian results and began in 1985. The two programs had similar perspectives on development and on curriculum, even though they served different groups of families and were of different duration.[2] Each has examined short-term effects of the intervention upon children's cognitive and emotional well-being and longer-lasting effects upon well-being and school achievement. The Abecedarian project, which offered early childhood services through age 5 and an elementary school program to some children thereafter, has followed the families through high school. The IHDP, which provided services through age 3, has followed children through elementary school.

Each study has special features that allow for a more nuanced look at the effects of early childhood programs. Using these data, researchers have explored the extent to which systematic interventions may enhance intellectual competence in children from disadvantaged families, what mediating factors are involved, how enhanced cognitive skills impinge upon school achievement, and how durable they are. And because the IHDP included high-risk children from both poor and nonpoor families, they have begun to tease apart the interactions between poverty and other risks to children.[3]

The Carolina Abecedarian Project

The Abecedarian Project was an effort to determine whether the provision of a coordinated program of early childhood education, pediatric care, and family support, beginning very early in a child's life, could promote intellectual competence during the preschool years, enhance school readiness, and improve academic achievement. The project took the form of a preschool educational intervention, in a day-care setting, for high-risk children from families with low educational, social, and economic resources. It included a control group of matched children who received medical care, nutritional supplements, and social services, but no educational component. The center was open full-day, year round.

A second phase of the intervention, in which parents were systematically supported in assisting their children's school progress, began when the children entered kindergarten and continued for three years. This phase included children from the early intervention and the preschool control group. Half of each preschool group was randomly assigned either to no program or to a program in which a home-school resources teacher visited parents, providing them with home curriculum activities individually tailored to each child and designed to reinforce the basic reading and mathematics concepts being taught in school.

Thus there are four groups of children, based on randomized design: (1) early childhood intervention plus follow-through, (2) early childhood intervention without follow-through, (3) no early intervention, but participation in the follow-through program, and (4) nonparticipant children who experienced neither early intervention nor follow-through. The children in all four groups were assessed at age 8 (when any formal intervention ended), using measures of intellectual development and academic performance; parents and teachers were also asked to rate their social competence. They were assessed again at ages 12 and 15 (see Table 1).

As the children entered mid-adolescence, researchers sought answers to a number of questions, among them:

1. Were there different patterns of intellectual development from infancy through mid-adolescence for children in the experimental groups, compared to children who had not received the intervention?

2. Were there detectable effects of the intervention in academic test scores at age 15, seven years after all intervention ended?

3. Over ten school years, did experimental children differ from untreated children in negative indexes of school

Table 1
Selected Characteristics of the Carolina Abecedarian and Infant Health and Development Projects

Characteristics	Carolina Abecedarian Project	Infant Health and Development Project
Type of program	*Preschool:* full-day child care *School-age:* parent program	1. Periodic medical assessments 2. Home visiting, education program for LBW infants/toddlers
Years of operation	1972–85	1985–88
Children enrolled	From low-income families in one N. Carolina site; eligibility determined by scoring on a high-risk index of social disadvantage[a]	Low-birth-weight children (< 2,500 g at birth) at 8 sites
Age at entry/exit	Entry 6 wk to 3 mo.; exit 5–8 yr	Entry on leaving neonatal clinic; exit at 3 yr (adj. for prematurity)
Sample sizes	*Initial sample*: 57 experimental and 54 control children, enrolled between 1972 and 1977 *Follow-up samples:* at ages 8/15, 48 experimental children, 42 (age 8) and 44 (age 15) control children	*Initial sample:* 337 experimental, 608 control children, enrolled Jan.–Oct. 1985
Family poverty	All below poverty line[b]	397 families poor; 307 not poor[b]
	Demographic Characteristics: Control-Group Families	
Race/ethnicity		
African-American	100%	52%
Hispanic	0%	11%
White, other	0%	37%
Mother's age (mean)	20.3 yr	25 yr
Mother's education less than high school (mean)	67%	32%
Nonintact family	73%	43.7%

Sources: C. T. Ramey and F. A. Campbell, "Poverty, Early Childhood Education, and Academic Competence: The Abecedarian Experiment," *Children in Poverty*, ed. A. C. Huston (NewYork: Cambridge University Press, 1992); M. R. Burchinal, F. A. Campbell, D. M. Bryant, and others, "Early Intervention and Mediating Processes in Intellectual Development among Low-Income African-American Children," *Child Development*, in press; C. T. Ramey, D. M. Bryant, B. H. Wasik, and others, "Infant Health and Development Program for Low Birth Weight, Premature Infants: Program Elements, Family Participation, and Child Intelligence," *Pediatrics* 3 (March 1992): 454–65; F.-r. Liaw and J. Brooks-Gunn, "Cumulative Familial Risks and Low-Birthweight Children's Cognitive and Behavioral Development," *Journal of Clinical Child Psychology* 23, no. 4 (1994): 360–72; W. S. Barnett, "Long-Term Effects of Early Childhood Programs on Cognitive and School Outcomes," *The Future of Children* 5, no. 3 (1995): 25–50.

[a]Risk factors included maternal and paternal education and indications of low parental IQ, family income, absence of the father, use of welfare, poor social support. The greatest weight was given to parental education levels and income.

[b]In the Abecedarian experiment researchers asked families to provide a range for earned income. In the IHDP, families were classified as poor if family income <150% of poverty, using 1986 U.S. thresholds.

progress such as retention in grade and assignment to special education?

4. What was the optimal timing for intervention: preschool or early elementary school?[4]

During the preschool phase, experimental and control children were at first equivalent on measures of intellectual development. Thereafter, children in the intervention significantly outscored preschool controls from age 18 months through 54 months. At age 8, children who had been in the preschool program had higher intellectual test scores than control children; they also scored significantly higher on standardized math and reading tests and were less likely to have been retained in grade. At age 12, these positive effects had been maintained. However, these children were still in early adolescence, somewhat under parental control and perhaps somewhat less involved in local youth culture. A second follow-up was conducted as they completed their tenth year in school (ninth grade, for those performing at grade level). At this point, about one-third of the sample lived in a two-parent household, another 35 percent in a single-parent family headed by the mother, 12 percent in complex, multi-generational households, and 8 percent with grandparents only.

On measures of cognitive performance, children treated in preschool had displayed an IQ advantage of 16.4 points at age 3. At age 8, the difference was 4.5 points.

This difference was maintained at age 15, when IQ scores were 95 and 90.3 for experimental and control children, respectively. Developmental trajectories were rather different for treated and control children. Those who had received the intervention showed marked early gains and a rather flat profile thereafter until age 8, with a gradual decline from 8 to 15. The children who had received no preschool treatment scored much lower during preschool and were more likely to show rising IQs after age 3, due, in part, to increasingly available preschool programs and the later availability of a highly resourceful school system. After age 8 their scores declined at a rate comparable to those of children participating in the intervention.

The benefits of early treatment were nonetheless strongly apparent for academic test scores in both reading and mathematics, with preschool experimental children outscoring controls. Throughout the entire ten years of school, children who had received the preschool treatment were less likely to be retained in grade than control-group children (31.2 percent and 54.5 percent, respectively), and only 24.5 percent of experimental children were placed in special education classes, compared to 47.7 percent of control-group children.

Academic test scores for all four groups clearly showed that the preschool intervention was more strongly associated with the improvement in academic achievement than was the later school-age intervention. Reading test scores suggest that there was a modest, long-lasting benefit from adding a school-age intervention, but mathematics scores do not. And for children who had not participated in the preschool program, the school-age program alone produced no lasting academic benefit.

What conclusions can be drawn from these results? The researchers note that the design of the experiment unavoidably confounds duration (8 versus 5 versus 3 years), timing (infancy and early childhood versus the primary school years), and the experimental model (direct teaching of the child versus parent-mediated home activities). It is, then, impossible to know for certain which factors were responsible for the stronger influence of the preschool years on intellectual and academic outcomes. The Abecedarian results suggest that educational intervention very early in the life span has a greater effect than experiences provided later.[5]

The simplest explanation for the persistence of test scores and measures of school progress into adolescence is that the early cognitive gains reflected in higher preschool IQ scores were associated with greater mastery of academics from the start; in other words, early success is associated with continued success. But the relationship between IQ scores and academic outcomes appears to be neither simple nor direct. Comparing Abecedarian results with rather different results from other studies such as the Perry Preschool study and a study of Milwaukee children, the researchers comment that clearly other factors in the homes, school, and communities of the Abecedarian students may have influenced outcomes in mid-adolescence. These factors are now being explored.

The Infant Health and Development Project (IHDP)

Building on findings from the Abecedarian Project and other similar interventions, the IHDP sought to determine the efficacy of a program of home visits, parental support, and an intensive, center-based educational curriculum in improving the cognitive development of a specific group of children at risk—low-birth-weight (LBW) infants.[6]

Low-birth-weight babies are those born, often prematurely, weighing less than 2,500 grams (about 5.5 lb). They constitute about 7 percent of all babies born in the United States. Among African-American families, the rate is double that for other ethnic groups—over 13 percent. Neither number has diminished in the last two decades.[7] Recognizing that low birth weight exposes children to serious risk of health, cognitive, and emotional problems, amendments to the Services for All Handicapped Children Bill (PL 94-142) now define “at-risk” children to include those born with low birth weights.

The sample of children participating in the IHDP consisted of all LBW premature children born in eight medical centers in a 9-month period in 1985 whose families agreed to participate and who met other eligibility criteria (they had no congenital anomalies and families lived within a specified catchment area).[8] Among these children, about a third were randomly assigned to participate in the early childhood program and the home visits (the intervention group). The remainder constituted a control group whose development would be followed but who would not participate, although they received the same pediatric services (the follow-up only group; Table 1.)

Children in the IHDP came from a variety of social and economic backgrounds. Nevertheless, mothers of LBW children are more likely to be socially and economically disadvantaged than mothers of children born at a normal weight. Poverty-level income, low levels of education and literacy, residence in poor neighborhoods, less access to health care, and minority status are all strongly associated with low birth weight. Thus many LBW children are exposed to double jeopardy—biological risks are compounded by economic and social disadvantage. Poverty alone is considered a major risk factor for poor physical and mental health and for deficits in cognitive development and school achievement. And it is linked to yet other risks, among them unemployment, inadequate parenting, and low social support. It seems probable, therefore, that the consequences of multiple risk factors

may be especially severe for LBW children in poor families.

Long-term effects of the IHDP

The IHDP findings for cognitive, verbal, and behavioral well-being are reported here for all children, poor and nonpoor, at three ages—3 years (when the intervention was complete), 5 years, and age 8 years.[9] From the beginning, children who participated in the intervention were assigned to one of two categories, determined by birth weight. The first group included those children who weighed 2,000 grams or less at birth (the Lighter LBW group), the second group those who weighed 2,001 to 2,500 grams at birth (the Heavier LBW group). Previous work on LBW children's development suggests that Lighter LBW children are at much higher risk for developmental delays than are Heavier LBW children, whose developmental trajectory is quite similar to normal-birth-weight children.[10] Thus it was expected that any intervention effects for the Heavier LBW children would be similar to effects seen elsewhere for normal-birth-weight children, for example, in the Abecedarian Project.

At the completion of the three years of the IHDP, the Heavier LBW children in the intervention group had IQ scores 14 points higher and receptive language scores that were 9 points higher than those in the follow-up only group. Two and five years after the intervention ended, the difference, though smaller, was still significant. (See Table 2.) At age 8, the Heavier LBW infants who participated in the early childhood program also had higher math achievement scores than those who did not. For the Lighter LBW infants, there appeared to be no sustained effects of the program at ages 5 and 8, even though at age 3 those in the intervention group had significantly higher scores than those in the follow-up group.

At 3 years of age, the Heavier LBW children in the intervention group gave less evidence of behavior problems, and there were modest sustained effects at ages 5 and 8 (Table 2). No sustained effects on behavior were found for the Lighter LBW children.

The risks associated with poverty

Over half (56.4 percent) of the families participating in the IHDP were poor.[11] Thus the structure of the program offers an opportunity to explore the risks associated in particular with poverty, though it was not specifically designed to do so.[12] Among questions that have been asked are: (1) How prevalent are risk factors experienced by LBW children from poor families? (2) Are they cumulative? (3) Does the provision of early intervention services reduce or buffer the adverse effects of risk factors, as some researchers have speculated? (4) Were treatment effects more pronounced for some groups than for others?

Table 2
Cognitive and Behavior Problem Test Scores for Low-Birth-Weight, Premature Children in the IHDP Intervention at Ages 3, 5, and 8

	Intervention Group	Follow-up Only Group	Difference
IQ Scores			
Heavier LBW			
Age 3	97.9	83.6	14.3***
Age 5	95.4	91.7	3.7*
Age 8	96.5	92.1	4.4**
Lighter LBW			
Age 3	91.5	84.4	7.1***
Age 5	89.8	91.3	-1.5
Age 8	88.3	89.5	-1.2
PPVT-R Scores			
Heavier LBW			
Age 3	92.7	83.3	9.4***
Age 5	84.5	78.5	6.0**
Age 8	92.4	85.7	6.7**
Lighter LBW			
Age 3	89.2	84.4	4.8***
Age 5	80.9	80.3	0.6
Age 8	81.6	84.4	-2.8
Behavior Problem Scores			
Heavier LBW			
Age 3	42.0	48.6	-6.6**
Age 5	29.2	33.3	-4.1+
Age 8	30.0	31.3	-1.4#
Lighter LBW			
Age 3	44.3	46.7	-2.4+
Age 5	33.1	32.8	0.4#
Age 8	33.0	31.9	1.1

Sources: J. Brooks-Gunn, C. C. McCarton, P. H. Casey, and others, "Early Intervention in Low-Birth-Weight Premature Infants: Results through Age 5 Years from the Infant Health and Development Program," *Journal of the American Medical Association* 272, no. 16 (October 26, 1994): 1257–62; C. C. McCarton, J. Brooks-Gunn, and others, "Results at 8 Years of Intervention for Low Birthweight Premature Infants: The Infant Health and Development Program," *Journal of the American Medical Association* 227 (1997): 126–32.

Note: Heavier low-birth-weight (LBW) children weighed from 2,001 to 2,500 g; lighter LBW children weighed 2,000 g or less. IQ= Intelligence test scores; the age 3 (end of intervention) test was the Stanford-Binet Intelligence Scale, the age 5 test was the Wechsler Preschool and Primary Scale of Intelligence (WPPSI), and the age 8 test was the Wechsler Intelligence Scale for Children (WISC). PPVT-R is the Peabody Picture Vocabulary Test-Revised, a measure of receptive language. The mean on the normative sample for these tests is 100 and the standard deviation is 15 or 16. Behavior problems were measured by the Child Behavioral Checklist (CBCL). At age 3, the CBCL for 2- to 3-year-olds was used. At ages 5 and 8, the CBCL for 4- to 12-year-olds was used. Multiple Linear Regression models and population marginal means with covariates fixed at their average value in the total sample were used to adjust means and mean differences for site, sex, race/ethnicity, maternal education, maternal age, and Neonatal Health Index.

*** $p < .001$; ** $p < .01$; * $p < .05$; + $p < .07$; # due to rounding to tenths place.

The prevalence of risk factors. When children participating in the IHDP were 3 years old, Fong-ruey Liaw and Jeanne Brooks-Gunn examined 13 risk factors that have been associated, in this and other studies, with adverse outcomes for both parents and children. Biological risk factors included low birth weight (especially very low birth weight—less than 1,500 grams, or 3.3 lb) and neonatal health. Socioeconomic risks included race/ethnicity and unemployment of the household head. The characteristics of mothers that posed a risk to the children included education, verbal ability, mental health, stressful life events, and low social support. Family structural risks included teenage motherhood, single parenthood, and high family density, that is, a child-adult ratio greater than 2.

The prevalence of all risk factors was higher, in most cases significantly higher, in poor families. For example, when researchers compared poor with nonpoor mothers in the follow-up only group, they found that 47.8 percent of the poor mothers (versus 11 percent of the nonpoor mothers) had less than a high school education, 33.9 percent (versus 8.8 percent) showed low verbal ability, 27.8 percent (versus 16.6 percent) showed evidence of depression, and 64.8 percent (versus 18.7 percent) were single parents.

The cumulative effects of risks. In the analysis of the cumulative effects of risks, families were grouped into six categories, the most severely affected group being those families with six or more risk factors. Individual risk factors that showed a significant association with children's IQ scores included the mother's education and verbal ability, whether she was depressed, and the level of stress in family life. As the number of risks increased, children's IQ scores decreased. Poverty by itself had a main effect: IQ scores for children who were poor were generally low regardless of the number and existence of risks. But poverty also had interactive effects with other factors, and, on average, poor children in families with two or more risk factors had IQ scores under 85. Interestingly, the negative effects of risk factors such as minority status or a mother's low verbal ability were greater for LBW children from nonpoor than from poor families. The reason, researchers suggest, may be that low income accounts for so significant a portion of the variance in children's outcomes that other factors play a relatively smaller role than they do in families with higher incomes.

Children's behavior problems, as reported by the mother, showed similar patterns: poor children were rated as having more behavior problems. Some risk factors—mother's verbal ability and depression—had independent effects on children's behavior. As the number of risks increased, so too did the incidence of severe behavior problems, but the strength of these associations was much weaker than for IQ. Where behavioral problems were concerned, for instance, there were no significant interactions between other risk factors and poverty.

Effects of the IHDP for children in poor families. When researchers examined poor children as a separate group, they found significant differences between intervention and follow-up only children. Intervention-group children whose mothers had incomes under 150 percent of the poverty threshold were most likely to show enhanced cognitive and receptive language scores.[13] Preschool verbal ability is the best predictor of competence in school (i.e., staying on grade level, completing high school, acquiring literacy), even after family, social, and economic status are taken into account. And the size of the cognitive effect reflects that seen in other studies, such as the High/Scope Perry Preschool Study.

Within the group of poor families, the effects of the intervention varied according to the number of familial risk factors. The intervention was effective for those poor families with no risk factors or from one to three or four risk factors, but not for "multirisk" families, those with six or more risk factors. It appears that the burden of poverty compounded by other risk factors may make it extremely difficult for families to benefit from a standard set of interventions. Poor families subject to multiple risks may require intense and highly individualized treatment programs, with different sets of intervention components and longer periods of participation.

In an extension of the cumulative risk analyses, researchers examined whether the intervention was effective in encouraging poor mothers to provide stimulating learning experiences in the home. It appears that it was, but again, only for poor mothers who had less than six risk factors. The intervention did not benefit those poor mothers with six or more risk factors. Since home learning is one of the major mediators of the effects of poverty upon children's cognitive and receptive verbal test scores, these results suggest a potential pathway through which the intervention influenced the children.[14]

This said, the results of the IHDP call into question the view that providing enrichment experiences in the first few years of life can fully protect children against cumulative biological, economic, and social risks. Edward Zigler, talking about Head Start, has succinctly expressed the problem: "We simply cannot inoculate children in one year against the ravages of a life of deprivation."[15] The question remains whether extended support and special services from preschool into the elementary years can improve the outcomes for some groups of highly disadvantaged children. That question is taken up by Arthur Reynolds and Barbara Wolfe in the next article. ■

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[1]J. Brooks-Gunn, R. T. Gross, H. C. Kraemer, and others, "Enhancing the Cognitive Outcomes of Low-Birth-Weight, Premature Infants: For Whom Is the Intervention Most Effective?" *Pediatrics* 89 (1992): 1209–15.

[2]Infant Health and Development Program Staff, "Enhancing the Outcomes of Low Birthweight, Premature Infants: A Multisite Randomized Trial," *Journal of the American Medical Association* 263 (1990): 3035–42; C. T. Ramey and S. L. Ramey, "Which Children Benefit the Most from Early Intervention?" *Pediatrics* 94 (1994): 1064–66.

[3]See, for example, F.-r. Liaw and J. Brooks-Gunn, "Cumulative Familial Risks and Low-Birthweight Children's Cognitive and Behavioral Development," *Journal of Clinical Child Psychology* 23, no. 4 (1994): 360–72.

[4]Methodology and outcomes are described in F. A. Campbell and C. T. Ramey, "Cognitive and School Outcomes for High-Risk African-American Students at Middle Adolescence: Positive Effects of Early Intervention," *American Educational Research Journal* 32, no. 4 (Winter 1995): 743–72.

[5]Researchers had also been interested in whether a child-centered program or a parent-mediated approach was the more effective—the Abecedarian program had included elements of both. In a smaller study, Project CARE, undertaken immediately following the Abecedarian study, 63 children were randomly assigned either to an untreated control group (group 1) or to one of two different interventions: center-based activities along Abecedarian lines, plus regular home visits by teachers (group 2), or home visits alone (group 3), with the same curriculum materials but without the day-care component. (Children in groups 1 and 3 may, of course, have gone to other day care programs.) At the end of the preschool years, children in group 3 showed no differences of cognitive development from those in group 1. See, e.g., Ramey and Ramey, "Which Children Benefit the Most?"

[6]For a full analysis of the program and its findings, see R. T. Gross, D. Spiker, and C. W. Haynes, eds., *Helping Low Birth Weight, Premature Babies: The Infant Health and Development Program* (Stanford, CA: Stanford University Press, 1997).

[7]National Center for Health Statistics, *Health, United States, 1996–97, and Injury Yearbook* (Hyattsville, MD: NCHS, 1997), p. 89.

[8]Of those families who were eligible, 75.7 percent were recruited for the IHDP, and 93 percent of them continued participation through the full three years.

[9]Infant Health and Development Program Staff, "Enhancing the Outcomes of Low-Birthweight, Premature Infants"; J. Brooks-Gunn, C. C. McCarton, P. H. Casey, and others, "Early Intervention in Low-Birth-Weight Premature Infants: Results through Age 5 Years from the Infant Health and Development Program," *Journal of the American Medical Association* 272, no. 16 (October 26, 1994): 1257–62; J. Brooks-Gunn, P. K. Klebanov, and F.-r. Liaw, "The Learning, Physical, and Emotional Environment of the Home in the Context of Poverty: The Infant Health and Development Program," *Children and Youth Services Review* 17 (1994): 251–76; C. McCarton, J. Brooks-Gunn, and others, "Results at 8 Years of Intervention for Low Birthweight Premature Infants: The Infant Health and Development Program," *Journal of the American Medical Association* 227 (1997): 126–32.

[10]M. C. McCormick, J. Brooks-Gunn, K. Workman-Daniels, and others, "The Health and Developmental Status of Very Low Birth Weight Children at School Age," *Journal of the American Medical Association* 267, no. 16 (1992): 2204–08.

[11]Families participating in the IHDP were classified as poor if their income when the child was 1 year old fell below the poverty threshold by an income:needs ratio of 1.5.

[12]Liaw and Brooks-Gunn, "Cumulative Familial Risks." The analysis included 704 children; 281 of the original sample were excluded because of missing data over the three-year period. Sixty percent of the sample came from the untreated group, 40 percent from those that had participated in the program. The mothers of the children in the subsample that the authors examined were more likely to be white, older, and better educated—in general somewhat more advantaged than the entire sample. For other discussions, including a comparison of the Abecedarian program and IHDP, see Ramey and Ramey, "Which Children Benefit the Most from Early Intervention?"

[13]Brooks-Gunn, Gross, and others, "Enhancing the Cognitive Outcomes"; Liaw and Brooks-Gunn, "Cumulative Familial Risks." Poor children in the intervention group also had fewer behavior problems than poor children who had not participated in the intervention.

[14]Brooks-Gunn, Klebanov, and Liaw, "The Learning, Physical, and Emotional Environment of the Home"; J. R. Smith, J. Brooks-Gunn, and P. K. Klebanov, "Consequences of Living in Poverty for Young Children's Cognitive and Verbal Ability and Early School Achievement," in *Consequences of Growing Up Poor*, ed. G. J. Duncan and J. Brooks-Gunn (New York: Russell Sage Foundation, 1997), pp. 132–89.

[15]E. Zigler, "Formal Schooling for Four-Year-Olds? No." *American Psychologist* 42, no. 3 (1987): 258.

Luxembourg Income Study Summer 1998 Workshop

The Luxembourg Income Study has made comparable over 75 large microdata sets which contain comprehensive measures of income and economic well-being for over 25 modern, industrialized welfare states. The LIS databank currently includes Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Israel, Italy, Luxembourg, the Netherlands, Norway, Poland, Russia, the Slovak Republic, Spain, Sweden, Switzerland, Taiwan, the United Kingdom, and the United States. It is also negotiating with Japan, Korea, Portugal, New Zealand, and South Africa.

The LIS Summer Workshop is a one-week pre- and postdoctoral workshop designed to introduce young scholars in the social sciences to comparative research in income distribution and social policy using the LIS database. The 1998 workshop will be held in Differdange, Luxembourg, from July 19 through July 25. The course of study will include a mix of lectures and assistance and direction using the LIS database to explore a research issue chosen by the participant. Workshop faculty will include the entire LIS staff (including Timothy Smeeding, Overall Director, Lee Rainwater, Research Director, John Coder, Technical Director, and Koen Vleminckx, Operations Manager) and other experienced LIS users.

For more information about the workshop, please contact LIS administrative assistants Caroline de Tombeur, LIS at CEPS/INSTEAD, B.P. 48, L-4501 Differdange, Luxembourg
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or Kati Foley, 426 Eggers Hall, Syracuse University, Syracuse, NY 13244-1020, USA
(email: lisaa@maxwell.syr.edu).
For an application form, please check the LIS home page on the World Wide Web at http://lissy.ceps.lu/index.htm. Applications are due by May 1, 1998.

School achievement, early intervention, and special education: New evidence from the Chicago Longitudinal Study

Arthur J. Reynolds with Barbara Wolfe

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In a time of intense fiscal accountability, policy makers and the public have a strong interest in determining whether large-scale public school interventions are cost-effective. The same fiscal concern informs the debate over a much more controversial strategy: the increasing assignment of children, especially those with diagnoses of psychological difficulties, to special education classes.

We have taken advantage of an unusually rich and complete body of data to examine and compare these two approaches. Since 1986, the Chicago Longitudinal Study has been evaluating the progress of children enrolled in an early childhood intervention program, the Child-Parent Centers that began in poor Chicago neighborhoods in 1967.

Measuring the effects of large-scale early interventions

Most of the evidence on the long-term effects of early interventions has come from model programs, such as the Abecedarian or Perry Preschool programs.[1] These programs have generally been small in scale and designed for careful evaluation, with large and well-trained staffs and detailed curriculum protocols. They have not been cheap, costing anywhere from two to three times as much as large-scale early childhood programs such as Head Start.[2] And they have rarely been implemented in inner-city communities.

Large public programs potentially offer advantages over model programs to evaluators: they usually have longer time frames and larger numbers of participants, increasing the statistical power of the results and the extent to which they can be generalized. But evaluation has often been hampered by deficiencies in the available evidence. Evaluators have typically relied on retrospective quasi-experimental designs. They have been plagued by difficulties in comparability among the groups they have studied, sample attrition, and limited data on the persistence of effects after the child has left the program.[3] The prospective design of the Chicago Longitudinal Study offers the advantages of a large-scale program without these deficiencies. The data from the study, although limited to one region, address the broad question of whether the effects of a large-scale program can be as durable as those of model, "Cadillac" programs. They also provide useful evidence on other equally pertinent issues—the optimal length of a program, the most suitable age of the child, the effects of length of stay in the program. Do two or three years of intervention beginning at age 3, for example, yield the same results as two or three years beginning at age 5?[4]

The Chicago Child-Parent Centers

The Chicago Public Schools currently operate 24 Child-Parent Centers (CPCs), with funds from Title 1 of the federal Elementary and Secondary Education Act. Twenty of them offer services from preschool to grades 3 and 4; four offer services in grades 1 and 2 only. The Chicago Longitudinal Study contains 1,150 children who enrolled in the 20 CPCs with preschool and kindergarten programs from 1983 to 1985.[5] These children were overwhelmingly black (95.6 percent) and poor (on average, 66 percent of families in these school districts were low-income in 1985, and 84 percent of the children qualified for free lunches). Because children have been able to enter and leave at different ages, researchers can investigate the long-term effects of different levels of participation, beginning at different ages. They also have a valid comparison group: 389 children who graduated in 1986 from government-funded, all-day kindergarten programs at six randomly selected schools in poor neighborhoods. About three-quarters of children in both groups were still active in the Chicago public schools in eighth grade, five to six years after the intervention ended.[6]

The CPCs, like Head Start, provide comprehensive services, require parents to participate, and implement child-centered approaches to the children's social and cognitive development. But the programs differ in important respects. The CPCs are part of the school system; their administrative centers are mostly housed in their "parent" elementary school and teachers in the CPCs are school system employees. Head Start, in contrast, usually contracts with social service or community agencies, not school systems. And whereas Head Start is primarily a

preschool program, the CPCs provide up to six years of intervention services from ages 3 to 9, offering children the possibility of a seamless transition and stable school environment from preschool through the early grade-school years.

Children in the CPCs can participate in a half-day preschool at the center and full-day kindergarten and primary-grade services at the parent elementary school. There is no uniform curriculum, as there has been in model programs like the Perry program, but classroom activities are designed to promote basic language and reading skills as well as social and psychological development. Ratios of children to staff (teachers and aides) are 1:8 in preschool, 1:12 in kindergarten and primary grades. In the primary grades, at least 50 percent of the children in each classroom are from the CPCs. The CPCs also require at least a half-day a week of parent involvement, for a variety of activities from classroom volunteering to enrollment in adult education classes. A separate parent resource room is staffed by a parent resource teacher and each CPC has a school-community representative.

School achievement of CPC participants

By examining school achievement through age 14 for both CPC participants and the comparison group, we were able to clarify some important questions.

1. Is there any association between participation in the CPC program and school performance?

At the end of the program in third grade, the reading and math scores of children who participated in the program were significantly higher than those of the nonparticipant comparison group (see Table 1). These differences persisted, although they had diminished in size by the end of eighth grade. (A similar pattern was reported for the Abecedarian program; see this issue, p. 13.) CPC participants were, moreover, significantly less likely to be retained in grade or to receive special education services.

2. *If children participate longer, do they do better?*

The answer is yes. School performance increased steadily with length of time in the program. Children who participated longest performed best—six-year participants were above the Chicago Public School average in reading performance, and their cumulative rate of grade retention was well below the national average of 18 percent.[7] Those who participated in preschool, kindergarten, and grades 1–3 programs performed significantly better than those who attended preschool and kindergarten programs only, except for special education placements; in that area, the difference between the two groups was insignificant. The achievement scores of children who attended for only one or two years were not distinguishable from those of the comparison group.

3. *Is the effect of the program the same whether children begin in preschool or in kindergarten?*

Generally, no. School performance was consistently, though not significantly, better among students who had begun four years of participation as preschoolers than among those who had begun four years of participation in kindergarten.

4. How does participation lead to better school functioning?

One common explanation posits that participation in the program has immediate, positive effects on children's cognitive functioning, and that when a child enters school these effects initiate a cycle of scholastic achievement and school involvement that culminates in better school outcomes through adolescence. An alternative explanation resting on family support suggests that early interventions remain influential to the extent that they improve family functioning, including the support parents give to children's schooling.

The study suggests five factors that mediate the effects of preschool intervention: (1) children's cognitive readiness at kindergarten entry, (2) teachers' ratings of children's school adjustment, (3) parent involvement in school, (4) children's school mobility, and (5) grade retention.[8] Thus both of the common explanations for the pathways of influence find support in our data, but they appear to be incomplete. The pathways of early childhood influence are complex and not all have positive effects. Because school moves interrupt friendships and social networks, and place children in a new and possibly different learning environment, they are likely to have negative consequences for schooling. A child who is held back a grade is showing a clear indication of failure to meet school requirements. Thus the positive influences of cognitive readiness and parents' involvement can be offset by school mobility and grade retention, which appear to inhibit both the transmission of preschool effects and children's sixth-grade achievement.

Special education in the Chicago school system

In this area we addressed a basic question: Does participation in special education classes advance children's school achievement? Does it have negative consequences for children? Are some children more likely to gain, others to lose?

Under the Individuals with Disabilities Education Act (IDEA), states are required to provide appropriate public education to all school-age children with disabilities. More than 10 percent of all school children are now served by special education programs which, in 1993, provided services to some 4.7 million children nationwide. The number of children participating has been stable in the last 25 years or so, but the composition of

the population has greatly changed. In 1980, fewer than one-third of children in special education classes were diagnosed with learning disabilities; by 1993, children with this diagnosis accounted for more than half of all children in educational programs for those with disabilities.[9]

As with Supplemental Security Income (see this issue, p. 51), the increase in children categorized as learning disabled has been controversial, in part because special education has become a major expenditure for many school districts. Diagnosis of a child with a learning disability or related emotional problems is difficult, and misclassifications may occur. Furthermore, teachers may have incentives to place difficult or disruptive children in special education classes, and in some school districts there may be financial incentives to do so (for instance, matching state funds).

There has been very little study of the effects of special education placement.[10] The difficulties are readily apparent; for example, in order to capture change in a child's performance over time and determine the value added by special education services, analysts must have an appropriate measure of how the student would have performed without the services. Much existing work suffers from methodological problems, ranging from small sample sizes to the lack of appropriate comparison groups. The data from the Chicago Longitudinal Study provide a very complete portrait of the educational and social adjustment of a large group of low-income children in a single school system. They contain measures of school performance and other experiences over a seven-year period, and information on the schools themselves and on children's families. Analysis, however, is constrained by some limitations—there are only a few categories of disability for the children and limited information about the quality of the special education services provided.

For this analysis we studied 1,245 children in the Study who were active in the Chicago Public Schools in the spring of 1992 (Grade 6).[11] All had participated in the CPC program. Nearly 15 percent were in some form of special education over the six elementary school grades—2.3 percent in grade 1, increasing to nearly 12 percent in grade 6. On average, children spent 2.1 years receiving special education services. During grades 3 to 6, 90 children (7.3 percent of all children in the sample) were in special education because of learning disabilities; half of those received services in all three grades. Another 93 children (7.5 percent of the sample) were in special education for other reasons: serious emotional disturbances, speech impairments, mental retardation, deafness, blindness, or multiple physical handicaps.

We also paid particular attention to two other leading indicators of students' difficulty in school, grade retention and mobility. In this population, 22 percent of the children were retained in grade and over 70 percent changed schools at some time between kindergarten and sixth grade.

We used regression analysis to estimate the "value added" to each year's reading and math achievement scores from grades 1 through 6, also taking into account children's earlier levels of performance, because children assigned to special education might respond differently according to their previous year's achievement. We included measures of both grade retention and school mobility. We took into account socioeconomic and background variables such as education, income, number of siblings, and added indicators of interest in school, such as the extent of participation in the CPC program. We included features of the school, such as average reading levels, the extent of student mobility, and measures of school resources.

We found, first, that differences in achievement between children placed in special education and other children in the sample tended to grow over time. For example, at age 6 there was an 8-point difference in reading scores between children placed in special education and those who were not. By age 12, that difference had widened to 17 points. We looked at school and classroom characteristics to see if the differences in school performance between those who were in special education classes and the others were due to the quality of the school or the instruction rather than to special education placement per se, but found no relationship. When we distinguished between learning-disabled children and those with other kinds of disabilities, we found that special education improved the performance of children with other disabilities for certain grades, but not of those with learning disabilities.

Second, children held back a grade tended to do worse after repeating that grade. The only exceptions were children held back in kindergarten, suggesting that if young children appear to be immature or floundering it may be helpful, especially for math achievement, to give some children an extra year before advancing them to first grade. The results of retention differed with the child's prior level of achievement. Those with the lowest test scores in the prior grade gained most from retention, while those with higher standardized scores tended to decline further.

Finally, and not unexpectedly, children's achievement in general drops when they change schools (again, there is an exception: changing school between kindergarten and first grade). Not only that, but they do worse as the proportion of other children in their school who have also changed schools increases.

In 1996, there were about 52,000 special education students in the Chicago Public Schools. The district's average annual operating expense for elementary school children in 1993–94 was $6,525; for children in special

Table 1
The Effects of Participation in the CPC Program

Effect	All Participants in the CPC	Comparison Group
Reading Achievement[a]		
Grade 3	98.6	92.9
Grade 5	112.8	109.8
Grade 8	146.1	142.3
Preschool + elementary school	154.9	
Elementary school only	147.7	
Math achievement[a]		
Grade 3	101.8	97.6
Grade 5	118.5	114.7
Grade 8	148.4	144.9
Preschool + elementary school	149.4	
Elementary school only	145.1	
Life-skills competence[b,c]	40.7	37.7
Preschool + elementary school	41.2	
Elementary school only	38.5	
% Ever retained in grade[b]	25.3	36.5
Preschool + elementary school	24.0	
Elementary school only	31.8	
Special education placement		
Years in special education[b]	0.6	0.9
Preschool + elementary school	0.5	
Elementary school only	0.9	

[a]Iowa Tests of Basic Skills standard scores are based on a moving average, ranging from 40 to 250, depending on grade.

[b]Grade 8 adjusted means.

[c]Raw scores on 63-item Minimum Proficiency Skills Test that measures consumer life skills in personal finance, health, transportation, occupations, communication, and government.

education it was 50–100 percent higher, approximately $9,000–$12,000 annually per pupil. The average cost of a model early childhood intervention has been estimated at $6,000 a year (see this issue, p. 42). The CPC preschool and kindergarten programs cost about $4,100 yearly per child (in 1996 dollars), and the primary grade portion about $3,600 per child (over and above regular instruction). And children who experienced the CPC program were much less likely to be placed in special education or to be retained in grade (see Table 1).

Our results from the Chicago study suggest that special education, in its present form, warrants further careful scrutiny. Rather than continue to spend large sums of money on these programs, we should evaluate which programs and program elements work best, and for which children. And, finally, we draw attention to one of the most striking effects of participation in the CPCs, the substantial reductions in time spent in special education and in grade retentions (Table 1). These results suggest that early intervention is a more effective and less costly strategy for some substantial proportion of children than is special education. ■

[1]The effects of the Carolina Abecedarian program on cognition and achievement and of the Perry Preschool Program on delinquency among participants are discussed in this *Focus*, pp. 12–14, and pp. 40–41, respectively.

[2]For instance, Perry Preschool had an average annual cost per participant of over $7,200 (in 1992 dollars) vs. Head Start ($4,571 in 1996).

[3]A different approach is that taken by Janet Currie and Duncan Thomas in their exploration of the longer-term effects of Head Start; Currie and Thomas make use of large national data sets, the National Educational Longitudinal Study (NELS) of 1988 and the National Longitudinal Survey of Youth (NLSY) to explore the effects of Head Start. They have, for instance, examined the role of later school quality in explaining the apparently different effects for African-American and white Head Start children; this work is summarized in J. Currie and D. Thomas, "Can Early Childhood Education Lead to Long-Term Gains in Cognition?" *Society for Research in Child Development Newsletter* 40, no. 2 (Spring 1997): 3–5. The evaluation of Head Start effects for Hispanic children is reported in this issue, pp. 22–24.

[4]This section of the article draws upon A. J. Reynolds, "The Chicago Child-Parent Centers: A Longitudinal Study of Extended Early Childhood Intervention," IRP Discussion Paper 1126-97, University of Wisconsin–Madison, March 1997. The article addresses other important questions, not discussed here, such as which factors and processes mediate the long-term effects of a program. For example, is the cognitive advantage conferred directly on the child more or less important than improvements in family environment and parent involvement that indirectly affect school achievement?

[5]All graduated from kindergarten in 1986; thus they constitute a single age cohort.

[6]The relationship between participation in the CPCs and children's behavior problems, including delinquency, is discussed in this issue, pp. 39–40.

[7]Sample children as a group were, however, performing well below the national averages for school achievement in reading and math. For example, in grade-equivalent scores, the national reading achievement average is 8.8 years, and the six-year CPC group average was 7.8 years. (For those in the comparison group, it was 6.8 years.)

[8]We measured parent involvement by parents' own ratings and teachers' ratings. Sixth-grade achievement included both math and reading scores.

[9]A child is placed in special education classes after evaluation by a group of specialists matched to the child's suspected disability. For each child so placed, an individual education program is developed; it can involve broad or limited services ranging from extra monitoring to a separate class with specialist teachers and a low student/teacher ratio. Nationally, 95 percent of special education students are in the public schools; they spend an average of 30 percent of their time in some special program.

[10]Existing work is reviewed by A. Hocutt, "Effectiveness of Special Education: Is Placement the Critical Factor?" *The Future of Children* 6, no. 1 (Spring, 1996): 77–102.

[11]The discussion is based upon A. J. Reynolds and B. Wolfe, "Special Education and School Achievement: An Explanatory Analysis," IRP Discussion Paper no. 1134-97, University of Wisconsin–Madison, 1997.

Does Head Start help Hispanic children?

Janet Currie and Duncan Thomas

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Head Start is the giant among early childhood intervention programs. It now enrolls over 700,000 children—almost one-third of 3–5-year-old children in poor families—at a cost of $4,600 per child, per year.[1] Head Start offers free access to preschools that are generally of higher quality than other preschools or child care arrangements used by poor children.[2] They provide preventive medical care, nutritious meals, and a curriculum designed to enhance children's cognitive skills and school readiness.

Public support for Head Start has remained strong, and the flow of federal funding to the program has increased over time. Yet there exists a strong undercurrent of skepticism about the long-term effects of the program. Evaluations of Head Start effects on test scores typically find that while children reap large gains during the program, these benefits fade out as children move through elementary school.[3] Supporters of the program argue that one cannot expect a one- or two-year part-day program to inoculate children against the deleterious effects of a lifetime of poverty.

But how much do we really know about the effects of Head Start? As other articles in this issue have noted, myths and misconceptions about early childhood programs abound, and it is difficult to carry out conventional experimental evaluations of large-scale programs, although one such evaluation of Head Start by Westat is currently under way. We know little about exactly what is happening to whom in Head Start programs. And the issue is complicated by the fact that there are in reality over 1,300 different Head Start programs, all administered at the local level.

Given this diversity in programming, it is perhaps understandable that national data sets have been somewhat overlooked as a source of information about Head Start. We believe that although it is not ideal, it is possible to use large-scale survey data sets to yield additional insights into the ways that the program works for different groups of children. In other research, we have used the National Longitudinal Survey of Youth and the National Educational Longitudinal Survey of 1988 to examine the long-term effects of Head Start on white and African-American children.[4]

This article focuses on Hispanic children. As a group, Hispanics lag behind both whites and African-Americans in educational attainment.[5] This educational deficit contributes to high poverty rates among Hispanics—in 1990, 36 percent of Hispanic children were poor compared to 18 percent of non-Hispanic children. Hispanics are not only more economically disadvantaged than other groups, they are also a rapidly increasing fraction of the U.S. population.

Hispanic children now constitute one-quarter of Head Start enrollees, and there are reasons to believe that the program might be particularly beneficial for them. First, many of these children are foreign born—37 percent in our sample.[6] Only about 16 percent of foreign-born Hispanic women speak English in the home, compared to 80 percent of American-born Hispanic women. So for many Hispanic children, preschool will be their first exposure to English. Head Start guidelines mandate bilingual education, and curriculum content is required to reflect the culture or ethnicity of the population served. But it is not universally accepted that bilingual education enhances the acquisition of English-language skills. Thus it is an empirical question whether Head Start programs have a greater effect than other preschools in which bilingual instruction may not occur.

Hispanic children tend to perform more poorly in school than other children whose home language is not English. Some part of the explanation for this may lie in a mismatch between the communication styles, verbal and nonverbal, of Hispanic children (and parents) and their teachers. And the high degree of residential segregation among poor Hispanic immigrant families could also work against the educational attainment of their children. Head Start attendance might, therefore, enhance the integration of the least assimilated and poorest immigrant children and provide them with educational role models not otherwise available in their communities. But some degree of assimilation might be necessary before children could make solid advances in Head Start or other preschool programs. This too is an empirical question.

In order to answer these questions, we estimate effects separately for children of native and foreign-born mothers. Our sample size was also large enough to allow us to conduct some separate examinations of Mexicans and Puerto Ricans, two of the largest Hispanic groups. The Head Start children in our sample were much more disadvantaged than the children who attended other preschools, and somewhat more disadvantaged than those who attended no preschool (see Table 1). Family income was lower, mothers had less education, and they were

Table 1
Characteristics of the Mothers of a Sample of Hispanic Children Enrolled in Head Start and Other Preschools

Mother's Characteristics	Native-Born			Foreign-Born			Mexican			Puerto Rican		
	Head Start	Other Preschool	No Preschool	Head Start	Other Preschool	No Preschool	Head Start	Other Preschool	No Preschool	Head Start	Other Preschool	No Preschool
Household income[a]	$20,470	$29,110	$25,410	$23,820	$34,340	$24,100	$24,190	$31,040	$25,870	$20,650	$27,170	$23,070
High school graduate	59%	82%	64%	46%	66%	47%	48%	63%	42%	54%	80%	63%
% of households with working adults												
When mother aged 14												
Male	41	47	41	22	33	28	38	42	41	21	20	24
Female	71	69	71	37	87	55	73	85	70	37	53	31
When child aged 3												
Spouse/partner	64	68	73	72	76	69	81	86	74	65	50	47
Mother working	29	42	37	31	42	27	40	43	37	23	33	12
Ethnicity and natality (%)												
Mexican origin				46	63	49						
Puerto Rican				46	9	25						
Children in each category	128	170	205	54	67	126	52	65	111	52	30	49
%	25	34	41	30	24	46	22	29	49	40	23	37

Source: National Longitudinal Survey of Youth, Mother-Child files, selected years.
[a]Average annual income 1985–92, in 1990 dollars.

less likely to be working.[7] The children were also less likely to live in a household with a father or other adult male. Table 1 reveals other differences. For example, the relationship between income and the mother's human capital varied among the different Hispanic groups, as did that between income and preschool choice—Puerto Rican families were poorer than Mexican families, even though mothers had higher levels of human capital than did mothers of Mexican origin.

Children who repeat grades are clearly having difficulty in school. And although the relationship between test scores and future child outcomes is not without controversy, we know that academic performance in early grades is a significant predictor of high school completion. Hence, we examined both grade retention and scores on tests of vocabulary, reading, and math (using the average score for each child over all tests reported) for the children in our sample.[8]

In our NLSY sample, 27 percent of the Hispanic children had repeated a grade, compared to 23 percent of the non-Hispanic white children. In general, in the NLSY, Hispanic children have lower test scores than do non-Hispanic white children (including the oversample of poor white children), especially on the vocabulary test. Among all Hispanic children in our sample, the average vocabulary score for those enrolled in Head Start was 23, compared to 30 for those in other preschools, and 22 for those in no preschool. In contrast, the average for non-Hispanic white children in the NLSY is 45.

We have already established that the Head Start children were more disadvantaged than the other children. Thus any calculation of advantages that may be conferred by Head Start compared to other preschools must factor in observable family differences such as income and parent's education. But Head Start families may also differ in unobservable respects, such as the value they place on education. We control for these observable and unobservable differences between families by comparing Head Start children to siblings who did not participate in the program. This method holds fixed any family-level determinants of children's scores that the siblings share.

These sibling comparisons suggest that for Hispanic children as a group, Head Start has a strong positive effect, particularly on verbal and math scores and on the probability that a child did not repeat a grade. Our calculations suggest that Head Start closes between one-quarter and one-third of the gap in test scores between Hispanic and non-Hispanic white children, and two-thirds of the gap in the probability of repeating a grade. In contrast, attendance at other preschools had no significant effect once characteristics of families were controlled. One explanation for these results is that when families pay for preschools they chose a preschool that does about the same job in terms of stimulating the child's cognitive abilities as the parents would do themselves if the child stayed home. But Head Start enables families to send children to a preschool with a more stimulating environment than the child would otherwise receive, hence children in these programs reap significant gains when family background is taken into account.

In keeping with our hypotheses about the importance of language in the home, we found significant differences in the vocabulary scores of children of native-born and foreign-born mothers. Vocabulary scores were 24.74 and 17.34, respectively. However, reading and math scores were quite similar for the two groups. But the benefits of Head Start accrued mainly to children of the native-born.

The estimated effects for these children were large, positive, and statistically significant. We found no particular relationship between Head Start benefits and family income, but we did find that the children of native-born mothers with higher levels of human capital gained more. Among children whose mothers were foreign-born, there was no apparent advantage from participation in Head Start, or indeed in any preschool program.

Other results suggest, however, that we cannot draw such a simplistic conclusion. In order to test more directly whether Head Start is able to compensate for limited exposure to English, we distinguished those children whose mothers were interviewed in English from those whose mothers chose to be interviewed in Spanish at least once. (Almost all native-born mothers and about 90 percent of Puerto Rican mothers chose to be interviewed in English.) Head Start did improve vocabulary scores for the children of foreign-born mothers who spoke Spanish at home, but not for those who spoke English at home (a group including, though not limited to, Puerto Ricans). But math and reading scores improved only for children whose mothers spoke English at home. Because formal math and reading skills, unlike spoken language, do not become highly developed until children go to school, children who speak less English at home may need continuing assistance in academic subjects when they reach school age.

Among subgroups, we found that Head Start compensated for a substantial portion of the vocabulary and math achievement deficit faced by children of Mexican origin, although it had less effect upon reading skills and the probability of repeating a grade. Mexican-origin children who attended Head Start performed better than siblings who attended other preschools or no preschool.

For Puerto Rican children, the picture is more complex. Those who attended Head Start showed no differences in performance from those kept at home, but both of these groups performed better than those who attended other preschools. Sample sizes are too small to allow us to separate the effects of region and ethnic origin, so we can only speculate that the other preschools available to Puerto Ricans are of generally low quality—a speculation supported by two observations. The first is that Puerto Ricans are the only group for whom the likelihood of attending some other preschool does not rise with income. The second is that when we stratify the sample by region rather than by ethnicity, we find that the effects of attending other preschools are higher in California than in the rest of the country. For many years, California has had a large, subsidized preschool program resembling Head Start. Puerto Ricans are less likely to live in California and to benefit from this program than are Mexican-origin families. We conclude that some of the differences we observe may actually reflect regional differences in Head Start and other preschool programs, rather than an effect of ethnicity per se.

Our study highlights some costs and benefits of assessing Head Start using large survey data sets. We were able to determine that Head Start had large and significant effects on Hispanic children as a group, and that there were differences in those effects among Hispanic subgroups. But even in this relatively large national data set, we did not have the data to test many interesting hypotheses about why Head Start has different effects on different groups. And we were restricted to examining the characteristics of parents and children; there were no data that would allow us to look at the impact of "supply-side" variations—differences among programs or in the availability of programs in different regions and communities. For more complete analyses of demand and supply to be possible, it would be useful to be able to link administrative or survey data containing information about local Head Start centers and other preschools to household data such as that in the NLSY. ■

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[1]Head Start statistics for 1996 appear in the box on p. 6. Head Start program guidelines require that 90 percent of participants be from families with incomes below the poverty line. In practice, 95 percent come from such families.

[2]U.S. General Accounting Office, *Early Childhood Centers: Services to Prepare Children for School Often Limited*, GAP/HEHS-95-21, Washington D.C. (March 1995).

[3]See R. H. McKey, L. Condelli, H. Ganson, and others, *The Impact of Head Start on Children, Families, and Communities*, DHHS Publication No. OHDS 85-31193 (Washington, DC: U. S. Government Printing Office, 1985).

[4]See J. Currie and D. Thomas "Does Head Start Make a Difference?" *American Economic Review* 85, no. 3 (June 1995): 341–64 and "School Quality and the Longer-Term Effects of Head Start," unpublished paper, Department of Economics, UCLA, July 1997. This latter article is summarized in "Can Early Childhood Education Lead to Long-Term Gains in Cognition?" *Society for Research in Child Development Newsletter* 40, no. 2 (Spring 1997): 3–5.

[5]In 1990, only 58 percent of Hispanics aged 20 to 24 were high school graduates compared to 80 percent of blacks and 85 percent of non-Hispanic whites. Not all of this deficit is due to the volume of Hispanic immigration: in our sample of NLSY Hispanic mothers, 56 percent of foreign-born and only 72 percent of native-born mothers were high school graduates.

[6]We include Puerto Ricans in this group, although they are U.S. citizens.

[7]Education was measured using high school graduation and AFQT scores. The AFQT test was developed by the military to aid in job placement of new recruits and is primarily a test of the skills a person is likely to bring to the labor market.

[8]Until 1992, all children were given the Peabody Picture Vocabulary Test in the first interview after their third birthday. In 1992, all interviewed children were given the Vocabulary Test. The Peabody Individual Achievement Mathematics and Reading Tests were administered to all children age 5 and over, in every wave of the survey. We compared the child's test scores in 1992 with the mean of all scores reported for that child; we use the latter because it yielded both systematically smaller standard errors and more observations, since scores are missing for some children in some years. Grade retention was reported only for children over age 10, so the sample size is about half that for the test scores.

Teaching mothers to teach their children: The Avance strategy

Many early education programs have attempted to provide parents with education and other resources to reduce the risk of school failure for children of low-income families. Some have done so by explicitly addressing maternal teaching skills; in others, maternal teaching was peripheral, and program developers simply assumed that the child's school performance would benefit if parenting competence and the home environment were enhanced.

These programs have yielded mixed results, with some evidence of success and some failures. Most of the studies had small samples and a restricted range of measures, so the reasons for the different results are not yet known. One program from which we can, however, derive pertinent information is Avance, a two-generation program that has been working with low-income Hispanic infants and their families in San Antonio, Texas, since 1973. The Avance program was evaluated from 1987 to 1991. The evaluation differs from many others in its large sample size, use of experimental procedure, and assessment of outcomes with multiple, extensively tested measures.

A forerunner of such national initiatives as the Comprehensive Child Development Program and Even Start (see pp. 28–33), Avance integrates two kinds of intervention strategies. It includes both services to promote the optimal development of the child—through parenting education, early childhood education, and high-quality child care—and programs to promote family self-sufficiency through adult education, vocational education, and enhanced employment. It has, furthermore, an explicit goal of helping mothers to become better teachers of their children.

The Parent-Child Education Program, one of the several programs in Avance, is a nine-month, comprehensive, center-based program with an in-home component.[1] It offers weekly three-hour classes to mothers and their children aged from birth to two years. Mothers make educational toys. They receive lessons in child growth and development, learn to see themselves as role models and teachers of their children, and learn about social services in the community. Parents are also visited once a month at home, and the lessons are reinforced with individual assistance and support. A major innovation when Avance began was an educational and vocational element, introduced in recognition of the fact that most women in the program would and did seek employment. Mothers may continue with the project for a second year, attending classes in English as a second language, preparing for the GED, taking community college courses, or otherwise developing vocational skills. The evaluation found that over half of first-year participants enrolled for the second year.

The average participant in the Parent-Child program is a low-income Hispanic mother in her mid-twenties, with two to three children. The vast majority of participants have no higher than a ninth-grade education and little or no work experience. The evaluation included 486 women; 207 participated in the Avance program, and 279 were in the control group. Attrition was high—47 percent for the program mothers, 10 percent for the control group—though researchers found no evidence that it introduced bias. Women mostly dropped out of the program because they had found work. The heavy demands of employment plus ordinary household and family responsibilities constitute a challenge facing all parent education/family support programs.[2]

The evaluation showed consistently positive and significant differences between participant and control mothers on three measures of teaching effectiveness.[3] One year after the program ended, women who participated not only believed that they could be effective teachers of their children but were able to put their beliefs into action.

These positive effects were measured relatively soon after mothers ended their participation. There has been no later follow-up for the children, but the effects achieved by Avance are similar to those reported for the Houston Parent-Child Development Center, which was still showing positive effects on both school achievement and children's behavior 5 to 8 years after the program was completed. The difference between the consistently positive results for Avance and the mixed effects of many other programs may lie, researchers believe, in the degree to which programs explicitly aim to teach mothers to teach their children. A critical and carefully fostered element in the program is the relationship that develops between participants and the staff, who are mostly bilingual Hispanic women, some of them previous participants. Thus Avance seeks to create a sense of community for families that does not end with the completion of a particular program. ■

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[1]T. B. Walker, G. G. Rodriguez, D. L. Johnson, and C. P. Cortez, "Avance Parent-Child Education Program," in *Two Generation Programs for Families in Poverty: A New Intervention Strategy*, ed. Sheila Smith, *Advances in Applied Developmental Psychology*, vol. 9 (Norwood, NJ: Ablex Publ. Co., 1995). The results discussed here are reported in D. L. Johnson, T. Walker, and G. G. Rodriguez, "Teaching Low-Income Mothers to Teach Their Children," *Early Childhood Research Quarterly* 11 (1996): 101–14. Avance also maintains an extensive web site at http://www.salsa.net/~avance/.

[2]Like most contemporary parent-education programs, Avance required approximately 150 hours of committed time in the first year. The Houston PCDC program described on pp. 37–38 required about 550 hours of parent activity over two years.

[3]These included the Home Observation for Measurement of the Environment (HOME), an observation/interview carried out with the mother when the child is present; the videotaped Mother-Child Interaction (MCI); and the Early Leaning Questionnaire (ELQ), an assessment of mothers' attitudes about being teachers of their children.

Early predictors of school adjustment among low-income urban children

Lee Shumow, Deborah Lowe Vandell, and Jill Posner

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Research evidence indicates that the school performance of adolescents is significantly affected by the neighborhoods in which they live. There is also strong evidence that, for preschool children's development, family is more important than neighborhood.[1] There remain, nevertheless, many questions. How early in life do neighborhood influences begin, and what are the pathways of influence? What characteristics of children, families, and communities might protect against or compensate for neighborhood risks? Drawing upon our data from a three-year study of low-income children in Milwaukee, Wisconsin, we suggest some answers.[2]

The resources, role models, and safety of a neighborhood combine to create the context that influences children's development. The neighborhood's collective resources are indicated by average income and by household structure—concentrated poverty and large numbers of single-parent families translate into fewer resources available to children in the neighborhood. The educational attainment of adults in a neighborhood represents what children may themselves expect to attain in school. Violent crime within a neighborhood restricts children's activities and creates an atmosphere of fear—it represents extreme social disorganization in a way not captured by other sociodemographic characteristics.

During the elementary school years, children's spatial boundaries and neighborhood interactions steadily increase, and it is reasonable to expect that any negative consequences of neighborhood risk will also begin to appear. Our first purpose was to examine whether neighborhood risk was associated with urban children's school adjustment at the end of third grade and again when children were completing fifth grade—at which point we predicted that school difficulties related to these risks would begin to become apparent. The children in our study lived in neighborhoods that ranged from working class (moderate risk) to ghetto areas (high risk), permitting us to investigate how school outcomes might be associated with different levels of neighborhood risk.

Our second purpose was to examine whether the psychosocial resources available to support children's academic adjustment vary by the level of risk in a neighborhood. According to the "contagion" theory, children who live in high-risk neighborhoods have fewer psychosocial resources, stemming in part from their contact with a disproportionate number of adults who have not completed high school, are not married, and do not earn a living wage.[3]

Finally, we sought to test which resources available to children protected them against the negative impact of neighborhood risk. Studies of resilient children living in high-risk family situations suggest that factors promoting resilience operate at individual, family, and community levels, but these processes remain largely unexplored in the context of neighborhoods. Individual characteristics that we examined included academic self-esteem, temperament (impulse control), and social-problem-solving skills; family characteristics included the provision of emotional support and parents' involvement with schooling; community processes included connections to neighborhood networks and support from teachers.

Defining neighborhoods according to census tracts, we created a composite measure of neighborhood risk on the basis of four characteristics: number of crimes against people, percentage of female-headed households, median number of years of education for adults, and median household income. We also created a composite measure of children's school adjustment using academic grades, standardized test scores, conduct grades, and teachers' ratings of children's social and emotional functioning. In brief, our regression analyses suggest that high neighborhood risk negatively predicted children's adjustment in fifth grade, but not in third grade. This holds true even when we take into account the child's sex and family factors such as family structure, income, and maternal education (factors that were significantly associated with academic adjustment in both grades). These findings, combined with those of other researchers, suggest that neighborhood influences on school adjustment emerge during the elementary school years. The possibility remains, however, that high-risk neighborhoods exercise their effects on young children's development indirectly, by restricting parental functioning.[4]

When we examined the relationships among neighborhood risks, resources, and school adjustment, we found

that temperament (impulse control) played a compensatory role, diminishing the independent effects of neighborhoods. Parental involvement in children's schooling was, not surprisingly, associated with living in a better neighborhood. Children in these neighborhoods were also more likely to attend neighborhood schools, and their proximity and character as neighborhood institutions may have promoted greater parental involvement. The amount of contact with neighbors was not related to neighborhood risk. However, analyses lend support to a contagion model of neighborhood influences, suggesting that contact with neighbors exerted a negative influence on school adjustment among children living in the ghetto neighborhoods, but not among those living in working class neighborhoods.

What processes mitigate the negative influence of high-risk neighborhoods and promote resiliency in children? Higher academic self-esteem and better impulse control were characteristics that predicted better academic adjustment among children. Parental involvement in children's schooling was the only family factor examined that systematically protected children against neighborhood effects on school adjustment.

Several factors that we thought would promote academic resilience proved to be insignificant. Social-problem-solving skills were not helpful in children's classroom performance, however beneficial they may be on the playground or in the neighborhood. Nor was the level of family emotional support, once we took into account individual traits and demographic characteristics. This is not to say that family emotional support does not contribute to children's well-being in other ways that were not tapped by measures of academic adjustment. Teachers' emotional supportiveness was related to better academic adjustment, but did not operate as a protective factor for children in high-risk neighborhoods. Rather, its positive influence on school adjustment was evident only in the better (working class) neighborhoods.

These findings may assist in resolving a critical educational and social policy issue—how to identify and promote processes contributing to better educational achievement among low-income children. They suggest the need to identify and target children residing in the highest-risk neighborhoods. Furthermore, they suggest paying particular attention to children who have poor impulse control and who spend time with neighbors rather than being engaged in constructive out-of-school activities. Our findings strongly suggest a particular focus on designing and testing methods for promoting parents' involvement in their children's schooling to improve school adjustment. ■

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[1]See, for example, S. Dornbusch, P. Ritter, and L. Steinberg, "Community Influences on the Relation of Family Statuses to Adolescent School Performance: Differences between African-Americans and Non-Hispanic Whites," *American Journal of Education* 99 (1991): 543–67; G. Duncan, J. Brooks-Gunn, and P. Klebanov, "Economic Deprivation and Early Childhood Development," *Child Development* 65 (1994): 296–318.

[2]The research summarized in this article is reported in full in L. Shumow, D. L. Vandell, and J. Posner, "Risk and Resilience in the Urban Neighborhood: Patterns of School Adjustment among Low-Income Elementary-School Children," paper presented at the 1996 annual meeting of the American Educational Research Association, New York. The sample consisted of 168 children attending 9 Milwaukee public schools in 1991, the year the study began (by the conclusion of the study, children were attending 40 different schools). About half were African American, nearly half were boys, and half lived in a single-parent household. Average reported family income in 1991 was $15,369, and on average, mothers were high school graduates. Attrition over the period of the study was slightly more than 10 percent.

[3]See, for example, W. J. Wilson, *The Truly Disadvantaged* (Chicago: University of Chicago Press, 1987).

[4]See also D. Entwisle, K. Alexander, L. Olson, and others, "The Gender Gap in Math: Its Possible Origins in Neighborhood Effects," *American Sociological Review* 59 (1994): 822–38.

Two-generation programs: A roadmap to national evaluations

In November 1991, at a national conference on the evaluation of family service programs, discussion turned to "comprehensive family services" or "two-generation" interventions.[1] "Two-generation" programs are designed to pay attention to the needs of both parents and children in low-income families—to help parents attain economic self-sufficiency through education and job training and to improve family well-being through parenting education and services that support children's healthy development, such as early childhood education and high-quality child care.

These programs were then relatively new and untested. They had evoked some optimism—"a potentially powerful new strategy" (Sheila Smith)—but also considerable skepticism: "an optimistic assumption is made that ameliorative and preventive programs exist that are both politically acceptable and efficacious. But we do not know what will be efficacious" (Peter Rossi). Not only were the programs themselves criticized, but so were the proposed evaluations. At least one critic spoke forcefully of "the folly of the current trend in evaluation away from attempting to understand social mechanisms and the root causes of social problems and towards black box evaluations of specific social programs" (James Heckman).[2]

Among programs discussed at the conference were four large-scale national projects that specifically included the evaluation of child outcomes. These were the Even Start Family Literacy Program, New Chance, the Comprehensive Child Development Program (CCDP), and the JOBS Child Outcomes Study. Much of the information about the evaluations of these projects is scattered and hard to track down, although the Profile and Synthesis Project, now under way (see p. 33), represents a major effort to present it in a compact and comparable format.

This article is not a summary of the program findings that are now beginning to appear. It is much less ambitious in scope, intended as a roadmap—a brief guide to an important product of these evaluations: their rich body of survey data and observational research on children in poor families (especially welfare families). The research now being published should challenge any temptation to resort to one-size-fits-all solutions. It offers information that may well prove enlightening to states embarking on new welfare regimes, suggesting what is effective and what is not, and for which groups.

The evaluator of child outcomes for Even Start and CCDP is Abt Associates; for New Chance and JOBS it is MDRC and Child Trends, Inc. Final reports for the Even Start evaluation appeared in 1995 and for New Chance in the summer of 1997. An interim report on CCDP appeared in 1994.[3] The JOBS Descriptive Study, an extended portrayal of families close to the start of the JOBS evaluation in Fulton County, Georgia, was published in 1995. As of October 1997, two-year findings were being finalized and researchers were collecting data for the five-year JOBS report for all sites of the Child Outcomes Study.[4]

In addition to basic economic and demographic information, the evaluations contain descriptive data on the lives of the participating families—the stability and quality of the home environment, levels of health and mental health, the stresses that bear upon them daily, social networks, the interaction between mothers and children, and father's roles. For subsets of the samples participating in the evaluations of New Chance and JOBS, mother-child interactions were observed using nearly identical methodology, to compare the potentially disparate effects of these very different programs.[5]

All the evaluations used standard psychological and life skills tests for parents, an extensive series of child developmental tests at different ages, and measures of parent-child relationships; all sought to illuminate the extent of family stresses and to explore children's cognitive development and school readiness. As just one example: a standard psychological test, the Center for Epidemiological Studies Depression (CES-D) test, was taken by mothers in all four evaluations. In each program, researchers found a disturbing incidence of symptoms of maternal psychological distress: 46.3 percent of Even Start parents, 53 percent of New Chance participants, and 42 percent of CCDP and the JOBS Descriptive Study mothers reported a high rate of depressive symptoms. This should be no surprise, given the stressful lives that many of these families report, but it may have negative effects on the family's capacity to improve its circumstances and on the future well-being of the children.

The programs and the families

Table 1 provides basic information about the participating families.

Even Start

The Even Start Family Literacy Program is an integrated program of early childhood education, adult basic skills training, and parent training. It is supported through competitively awarded grants to school districts and other community educational organizations. Even Start began as a federal demonstration program administered

Table 1
Some Characteristics of Families at the Beginning of the Programs

Program	Marital Status	Race/Ethnicity	Income	Education	Samples Studied
Even Start	50% couples, 37% single parents, 13% extended households	White 40%, African-American 26%, Hispanic 22%, Asian/ Pacific Islander 8%	66% with annual income <$10,000	79% not HS graduates	340 projects funded 1989–92, detailed examination of 120 projects funded 1989–90 (101 experimental, 98 control families)
New Chance	100 % single mothers	Main sample: 78% members of minority groups Child Trends sample: 16% white, 84% African-American	AFDC recipients; 63% had not worked in year preceding enrollment	<10% had HS diploma or GED	1. Main sample (MDRC): 2,322 families 2. Child Trends observ. study of parenting behavior: 290 families
CCDP	58% single parents	White 26%, African-American 42%, Hispanic 27.3%, Asian American 1.4%	85% with annual income <$10,000	52% not HS graduates	2,214 experimental, 2,197 control families
JOBS Child Outcomes Study	100% single parents	Fulton Co. (GA): 4% white, 96% African-American	Fulton Co. (GA): 65% with monthly income <$600	Fulton Co. (GA): 53% HS diploma, 35% neither diploma nor GED	1. Main Child Outcomes Study: 3,000 families in 3 sites 2. Fulton Co. (GA) descriptive study: 790 families; observ. study of mother-child interaction: 351 families

Sources: R. St. Pierre, J. Swartz, B. Gamse, and others, *National Evaluation of the Even Start Family Literacy Program: Final Report*, U.S. Department of Education, Office of the Under Secretary, Planning and Evaluation Service January 23, 1995. J. C. Quint, J. M. Bos, D. F. Polit, *New Chance: Final Report on a Comprehensive Program for Disadvantaged Young Mothers and Their Children*, MDRC, New York, July 1997;M. J. Zaslow and C. Eldred, eds., *Parenting Behavior in a Sample of Young Single Mothers in Poverty: Results of the New Chance Observational Study*, MDRC, New York, in press; R. St. Pierre, B. Goodson, J. Layzer, and others, *National Impact Evaluation of the Comprehensive Child Development Program: Interim Report*, Abt Associates, Cambridge, MA., May 1994. K. Moore, M. J. Zaslow, M. J. Coiro, and others, *How Well Are They Faring? AFDC Families with Preschool-Aged Children in Atlanta at the Outset of the JOBS Evaluation*, U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, September 1995.

by the U.S. Department of Education; in 1992, most responsibility for administering grants devolved upon states.

Families enrolled in this voluntary program were those in which there was an adult eligible to participate in an adult education program under the Adult Education Act and a child under 8 years of age, living in a Chapter 1 elementary school attendance area. For 46 percent, wages were the main source of support, for about half, it was government assistance. Only two-thirds spoke English as a primary language. Among the adults with only limited proficiency in English, 86 percent had been educated outside the United States, 60 percent had not reached ninth grade, and 78 percent were unemployed. Only a few of the parents were teenagers; 46 percent were aged 22–29, and 31 percent aged 30–39.

To adults, Even Start offered (1) parenting education programs, which included help in making use of services provided by other agencies, discussions of parents' roles in their children's education and orientation to school routines, instruction in health and nutrition, life skills, and child development, and training in managing child behavior; (2) adult education programs, which included help in preparing for the GED and adult basic and secondary education (61 percent of Even Start programs provided instruction in English as a second language).

New Chance

The New Chance study is one of the few large-scale, rigorous evaluations of programs designed to improve the poor economic prospects and family circumstances of unwed teenaged mothers. A demonstration project that was initiated by MDRC and supported by a broad consortium of public and private funders, New Chance operated between 1989 and 1992 at 16 locations in 10 states; local sponsors were, in the main, community service organizations or schools and school districts.

New Chance was, for the most part, a voluntary program: young women in the chosen sites were not required to participate in order to receive public assistance. Women enrolled in the program were single, teenaged mothers who had dropped out of school, were receiving Aid to Families with Dependent Children (AFDC), and were not pregnant at the time of enrollment. The New Chance Observational Study took place shortly after the 18-month follow-up study for the entire evaluation.[6] It was carried out in a subset of the evaluation sites and was

limited to African-American and white families with a "focal child" aged between 27 and 63 months (that is, a child who was the focus of interviews and assessments in the main study).

New Chance unfolded in two phases. Phase 1 centered on education, career exposure, and "personal development" (parenting, family planning, and life skills), delivered mostly at the program site, in small classes, five days a week. In Phase 2, occupational skills training, work experience, and help in job placement were provided, generally off site. Enrollees could remain in the program for 18 months. For as long as they remained active they had access to free child care. In addition, they could receive twelve more months of follow-up by a case manager.

CCDP

CCDP, administered by the Administration on Children, Youth, and Families (HHS), provided financial assistance to programs that offered services to infants and young children from low-income families. The local programs had substantial latitude in design as long as they met some prescribed service delivery criteria—to intervene as early as possible in children's lives, to involve the entire family, and to provide comprehensive, integrated supportive services to children and parents until children entered elementary school. In all, 34 projects were authorized between 1989 and 1993.

On a voluntary basis, CCDP programs recruited families living below the poverty line, with a pregnant woman or a child under one year of age, who were considered to need intensive services to counter environmental, health, or other risks and who agreed to participate in the program for five years. At the time of their recruitment into CCDP, about one-third of the mothers were pregnant. Another 5.9 percent were recruited immediately after the child's birth, and the remaining 63.6 percent after the child was a month or more old. About 25 percent of the mothers were teenagers. Over 40 percent had a total annual income under $5,000 and, when interviewed after two years in the program, about two-thirds of families were receiving AFDC or other welfare. English was not the primary language for 16 percent of the children.

In CCDP, case managers were central, preparing individual plans for each family, making frequent home visits, coordinating existing community resources, filling gaps in local programs by delivering services directly through the CCDP agency. Prenatal care, education in infant and child development, health, nutrition, and parenting, referrals to educational and vocational training, and help in securing health care, income support, and housing, were part of the mix of services offered.

The JOBS Child Outcomes Study

The centerpiece of the Family Support Act (FSA) of 1988 was the Job Opportunities and Basic Skills Program (JOBS), which required eligible welfare recipients to participate in education, job training, and work experience or job search activities. The JOBS program as such ended with passage of the Personal Responsibility Act in August 1996, but the evaluation study is being completed.

The JOBS evaluation has two parts. The larger study, being conducted by MDRC, examines the economic impacts of the program on 55,000 families in seven sites. Nested within that study is the main Child Outcomes Study, in which Child Trends has been following families in Georgia, California, and Michigan. Its goal is to determine the effects of the program, positive or negative, on the children of JOBS participants and to explore the mechanisms that might explain them. Child Trends also carried out a very detailed post-baseline survey of families from Fulton County, Georgia, shortly after they were randomly assigned in the JOBS program. It is now coordinating an observational study of mother-child interactions in families at the same site.

JOBS was not voluntary, and, in a departure from previous practice, mothers with children as young as three years of age were required to participate as a condition of receiving welfare. As with New Chance, participants were, by definition, single mothers receiving AFDC, but they were older than New Chance participants. In the Fulton Descriptive Study, two-thirds of mothers were 25–34 years old. (Forty percent, however, had been 19 or younger when the oldest child currently living with them was born.) These mothers tended to be better educated, on average, than participants in any of the other programs. Nonetheless, nearly half had been on welfare for more than five years.

Most services offered through JOBS were aimed directly at the needs of adults. In the evaluation, families were randomly assigned to one of two distinct program groups or to a control group not subject to the JOBS requirement. A human capital development group focused on the provision of basic education and training, whereas a labor force attachment group focused on job search activities to bring about a rapid transition to employment. Medicaid and child care benefits were provided both during participation in the program and for 12 months after the participant moved from AFDC into a job. The program also sought to enhance child support enforcement.

Overview of the programs

To list the services of these programs tells little about how they were structured or how intensively and effectively they were implemented, but does suggest broad program purposes and directions. All offered a mixture of education and training for the adults, paid attention to adult and child health, and provided some services to enhance child development, up to and in one case (Even Start) during elementary school.

This said, the reports show that the programs had really very little in common. The main focus of the effort in each was quite different. Even Start was a family literacy program. The primary goal of CCDP was enhancement of the physical, social, emotional, and intellectual development of children at risk. New Chance was primarily mother-focused. New Chance and JOBS stressed direct preparation for employment much more strongly than the other two programs, on the assumption that the needs of poor children are best served through educational and employment services to their parents. And because the programs sought to take advantage of existing community services in education and health, supplementing them where necessary, all displayed considerable internal variability.

In general, the availability of other programs for low-income families with young children complicated the evaluations. In Even Start, 98 percent of participating families had a child in early childhood education. But so did 60 percent of comparison families who were not participating, and evaluators noted a steady convergence between the test scores of participating and nonparticipating children as they moved into kindergarten. In New Chance, 94 percent of mothers in the experimental program participated in employment-related services, but so too did 85 percent of mothers in the control group. Indeed, researchers evaluating New Chance note that their study "is not a test of extensive services compared with no services or minimal ones. Rather, the evaluation measures the effectiveness of a particular mix and level of services that were relatively easy for those in the experimental group to obtain against another mix and level of services that individuals in the control group could secure only if they displayed somewhat greater initiative."

Programs for children

Even Start explicitly provided early childhood education services, as distinct from child care. These services included Head Start, Chapter 1 prekindergarten programs, and, in 87 percent of programs, additional preschools. About three-quarters of Even Start providers also jointly planned programs for school children under the age of 8 with the public schools. Joint parent-child activities included reading and story-telling, social development and play activities, development of gross motor skills, working with numbers, arts ands crafts, and health and nutrition.

In CCDP, the nature of the services provided varied from site to site. Some sites considered parenting education to be the early childhood service; some used Head Start or other existing prekindergarten programs. No program offered a center-based experience to children under the age of three.

No assessment of quality was undertaken in either Even Start or the CCDP evaluations.[7] The issue is addressed indirectly in the reports through the extensive testing of children's developmental progress and school readiness.

The other two programs either provided, arranged for, or subsidized the provision of child care, with the intent that exposure to child care of good quality would enhance the development of the children and provide families with models of good parenting practice. For the JOBS program, the two-year report will examine the role of child care participation in mediating any child impacts. For families in the Fulton site, a study examined the implications for children of participation in formal child care. For New Chance, there was a study of child care quality in selected sites.[8]

It appears from the reports that many of the children involved in these four programs also participated in organized early childhood programs unrelated to the program itself. The quality of these programs and services are thus central to any evaluation of effects on children.

Participation

Program descriptions, like company prospectuses, tend to describe an ideal, when what really matters to investors is performance under real-world conditions. An extremely important issue in the evaluations of the voluntary programs thus became the level of participation achieved compared to the level desired.

Even Start projects were generally funded for four years. But among families that began the program in 1989–90, 53 percent participated only in the first year, and only 10 percent participated in all four years. The average family participated for seven months. The intensity of family participation also varied very greatly. For adult education, the average family received 107 hours of services (the median was 41), 58 hours of parenting education (the median was 29) and 232 hours of early childhood education (the median was 102).

In New Chance, participation was much less intensive than had been planned: 11 percent of the experimental group did not participate at all, another 25 percent participated for 100 hours or fewer, and 22 percent registered more than 500 hours. On average, participants were active in the program for only 6.4 months, and only about one-third of the experimental group received the skills training that program planners had envisioned as essential to their obtaining good jobs.

In the interim evaluation of CCDP, conducted two years after the program began, it was found that 58 percent of CCDP mothers had met with a social worker, on average more than once a month; given that the case manager was central to CCDP, the percentage seems low. Evaluators comment that about a third of families originally assigned to CCDP had been terminated, for various reasons, before the two-year interview.[9]

Although JOBS is a mandatory program, participation in official program activities is not universal. Depending on the site, between 44 and 74 percent of the labor force attachment group and between 51 and 67 percent of those in the human capital group participated for at least one day (though usually much longer) in program activities.[10]

The importance of degree of participation is very clear, just as it is with other early childhood interventions reported in this issue of *Focus*. For example, adults and children that participated intensively in the core services of Even Start made significantly greater test gains than did adults and children with low levels of participation. Yet it must be noted that those who chose to participate more in program activities may have been a select subgroup to begin with.

The conclusions

It may still be too early to ask whether the dust has settled—have these programs lived up to their optimistic reception or justified the beliefs of the doubters? Final results are not yet out or not fully digested, and any attempt at this point to synthesize and compare complex sets of findings would be difficult and premature. The conclusions from these studies are still at best ambiguous: some initiatives worked, for some people, some of the time; some did not seem to make much difference; and, disturbingly, some may even have been harmful to a subset of participants. The lesson from these evaluations, above all, is that disadvantaged families are a heterogeneous population, and that understanding why programs work or fail requires extremely careful disentangling of personal, familial, and program characteristics.

Two examples may suggest why we should not draw simplistic conclusions:

1. The gains from Even Start for children and their parents were, say the evaluators, on average no greater than those that similarly motivated families would obtain for themselves using locally available services. But the evaluators noted a strong positive relationship between the amount of home-based services provided and participation/retention in the program. If greater participation leads to greater gains, a more intense program might well have positive and long-lasting results. But if home-based services are expanded to improve participation, a program may be unable to serve as many children as it might in a center. What is more important —inclusiveness or intensity?

2. The findings of the New Chance evaluation, reported in the summer of 1997, drew wide media attention.[11] They also have provoked a lively debate over the extent to which small improvements in parenting skills may have long-run consequences. The results of the program were undoubtedly disappointing to its progenitors—tribute in part to the difficulty of improving the fragile and troubled lives of highly disadvantaged young women. Yet it would be too soon to conclude that New Chance did not "work." For instance, positive impacts on parenting behavior were more lasting for those young mothers who did not show high levels of depression. Results from other model programs, indeed, show that unexpected, long-term consequences and positive side effects have appeared. Exploration of the differential effects of programs for particular subsets of participants is proving a fruitful and enlightening endeavor. ■

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[1]The conference was jointly sponsored by IRP and the Office of the Assistant Secretary for Planning and Evaluation in the Department of Health and Human Services. The discussions were reported in *Focus* 14, no. 1 (Spring 1992):10–34. The quotations that follow come from pp. 10, 22, and 24, respectively.

[2]Elsewhere, however, Heckman comments favorably upon the encouraging results of some early intervention programs, noting that "more studies of the long-term impacts of various types of small-scale and broadbased early intervention programs are certainly warranted." ("The Effects of Government Policy on Human Capital Investment and Wage Inequality," *Chicago Policy Review* 1, no. 2 [1997]: 1–40.)

[3]The final report for CCDP has been completed, but has not yet been released by the Administration for Children and Families.

[4]R. St. Pierre, J. Swartz, B. Gamse, and others, *National Evaluation of the Even Start Family Literacy Program: Final Report*, U.S. Department of Education, Office of the Under Secretary, Planning and Evaluation Service, January 23, 1995; J. C. Quint, J. M. Bos, D. F. Polit, *New Chance: Final Report on a Comprehensive Program for Disadvantaged Young Mothers and Their Children*, MDRC, New York, July 1997; M. J. Zaslow and C. Eldred, eds., *Parenting Behavior in a Sample of Young Single Mothers in Poverty: Results of the New Chance Observational Study*, MDRC, New York, in press; R. St. Pierre, B. Goodson, J. Layzer, and others, *National Impact Evaluation of the Comprehensive Child Development Program: Interim Report*, Abt Associates, Cambridge, MA., May 1994; K. Moore, M. J. Zaslow, M. J. Coiro, and others, *How Well Are They Faring? AFDC Families with Preschool-Aged Children in Atlanta at the Outset of the JOBS Evaluation*, U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, September 1995.

[5]M. J. Zaslow and C. A. Eldred, "Observational Research within Contrasting Two-Generation Interventions: The JOBS and New Chance Embedded Observational Studies," paper presented at the Second National Head Start Research Conference, November 6, 1993 (available from Child Trends, Inc., Washington, D.C.). The following papers were presented at meetings of the Society for Research in Child Development, Washington, D.C., 1997: M. Zaslow, M. Dion, and D. R. Morrison, "Effects of the JOBS Program on Mother-Child Relations during the Early Months of Program Participation"; J. De Temple, "Mothers' Book Reading with Young Children: An Observational Study within the New Chance Demonstration"; N. S. Weinfield, J. R. Ogawa, K. H. Hennighausen, and others, "Helping Mothers, Helping Children? Predicting Child Outcomes from Mother-Child Interaction in the New Chance Demonstration."

[6]The Observational Study of New Chance was coordinated by MDRC and Child Trends and also involved teams at Harvard University, the University of Minnesota, Georgetown University, and independent researchers. The same collaborative team is conducting the JOBS observational study.

[7]A new evaluation of Even Start, just beginning, will emphasize analysis of high-quality projects.

[8]See M. Zaslow, E. Oldham, K. Moore, and others, "Participation in Community-based Child Care and the Cognitive and Social Development of Children from Welfare Families," paper presented at the Society for Research in Child Development, Washington, D.C., 1997. For the New Chance study, see B. Fink, "Providing Quality Child Day Care in a Comprehensive Program for Disadvantaged Young Mothers and Their Children," *Child Welfare* 74 (1995): 1109–34.

[9]Only 18 percent of control mothers had seen social workers, however, and the average for them was more like once a year. Although CCDP had many participation requirements, it had no means of enforcing them, except to drop families if efforts to keep them engaged in program activities did not succeed within 6–12 months.

[10]G. Hamilton and others, "Evaluating Two Welfare to Work Program Approaches: Two-Year Findings on the Labor Force Attachment and Human Capital Development Programs in Three Sites," prepared for the U.S. Department of Health and Human Services and the U.S. Department of Education by MDRC, New York, 1997.

[11]B. Vobejda, "Old Problems Undermine Teen Mom's New Chance: Survey Finds Aid Program Improves Few Lives," *Washington Post*, July 2, 1997.

Young Children's Education, Health, and Development: The Profile and Synthesis Project

What are the current large-scale research initiatives on early childhood development? How have these initiatives drawn on and expanded the findings of past research? How is the current generation of studies breaking new ground? What will be the implications of their findings for research, social practice, and social policy?

These questions are being addressed by "Young Children's Education, Health, and Development: The Profile and Synthesis Project," part of a research collaboration among three federal agencies: the National Institute on Early Childhood Development and Education in the U.S. Department of Education, Family and Child Well-Being Research Network of the National Institute for Child Health and Human Development (NICHD), and the Office of the Assistant Secretary for Planning and Evaluation in the U.S. Department of Health and Human Development. The project is being directed by Jeanne Brooks-Gunn, Virginia and Leonard Marx Professor, and Lisa Berlin, Research Scientist in the Center for Young Children and Families, Teachers College, Columbia University, New York.

The project focuses on selected contemporary, large-scale initiatives in the area of young children's health, development, and education. Some are federally funded, some privately funded. These initiatives are of two general types: (1) longitudinal studies of children and their families; (2) demonstration programs designed to assess both the effectiveness of a set of services related to family and child well-being and the development of children within specific community settings.

Among the first category of projects are the Early Childhood Longitudinal Study, the NICHD Study of Early Child Care, the Project on Human Development in Chicago neighborhoods, and initiatives of the National Center for Early Development and Learning in the U.S. Department of Education. Among projects in the second category are Early Head Start, Healthy Start, the Comprehensive Child Development Program, Home Visiting 2000, and the Job Opportunities and Basic Skills (JOBS) Evaluation.

The predictors of youth unemployment

Avshalom Caspi, Bradley R. Entner Wright, Terrie E. Moffitt, and Phil A. Silva

Avshalom Caspi and Terrie E. Moffitt are Professors in the Department of Psychology, University of Wisconsin–Madison, and in the Institute of Psychiatry, University of London, England; both are IRP associates. Bradley R. Entner Wright is a post-doctoral fellow with the National Science Foundation's National Consortium on Violence Research; Phil A. Silva is Director of the Dunedin Multidisciplinary Health and Development Research Unit at the University of Otago Medical School, New Zealand.

Effective interventions with young children, though differing in many ways, have one characteristic in common: they have all been intensive and relatively long-lasting. They have, therefore, been costly. Because resources are not unlimited, a common thread in discussion of such interventions is selection—how to choose those children most likely to benefit. If the goal of a program is to reduce or prevent delinquency, interveners are on fairly solid ground: the early predictors of delinquency are increasingly well understood and the target population can be rather precisely defined.[1] But is it possible to identify those children who will fail to make a successful transition from adolescence to adulthood—who will drop out of school, fail to get or to keep a job?

In a forthcoming article in the *American Sociological Review*, we suggest that it is. Drawing upon data from the Dunedin Multidisciplinary Health and Development Study, a longitudinal study, we test a series of hypotheses about the childhood and adolescent predictors of youth unemployment.[2] To our knowledge, this is the first study to examine the precursors of unemployment using prospective data from early childhood to young adulthood.

The Dunedin study may be unique in the breadth and completeness of its information. For 25 years, we have studied the health, development, and behavior of a complete cohort of young people born in the city of Dunedin, New Zealand, between April 1972 and March 1973. At age 3, 1,037 children participated; just over half were male. Children came back for tests and interviews about every two years thereafter, and in the most recent follow-up, at age 21, 992 members of the original sample participated.[3]

Cross-national comparisons among developed Western nations give us confidence that findings of the New Zealand study will hold good elsewhere, and our own comparison study of white and black youth in Pittsburgh suggests that the predictors of problem behavior are the same in both samples.[4] Labor markets in the United States and New Zealand have common features. Both have undergone dramatic economic fluctuations and structural changes since the 1970s. In both countries, the rate of unemployment among young people is higher than among adults,[5] and the process of labor market entry is similar—neither country has large-scale subsidized work schemes, and in both there is a relatively low level of public expenditure on "active" labor market programs such as employment training.

The risk factors for unemployment

In predicting labor market outcomes, social scientists have tended to focus on different individual-level predictors of unemployment. Economists look to the transmission and acquisition of resources, skills, and qualifications that increase employability, sociologists to socialization influences that shape children's attainments, and psychologists to mental health and behavioral styles that shape each person's approach to the labor market. In our discussion, we use the concept of "capital" as an organizing principle to embrace all three perspectives—seeing human, social, and personal capital as different kinds of "goods" or resources which children possess in differing amounts and whose links to future unemployment we seek to determine.

Under human capital, we consider family economic resources and occupational status, youths' own educational credentials ("anticipatory" human capital), basic reading ability, and measured intelligence. As sources of social capital, we identify family structure (primarily, whether the child is growing up in a single-parent family), the nature and stability of parent-child relationships, and the degree of school involvement. The characteristics of personal capital that may affect success in the labor market are antisocial behavior, symptoms of mental illness, and poor physical health. The boundaries between these kinds of capital are, of course, elastic; for example, IQ is both human and personal capital.

If these characteristics begin to shape labor market outcomes in childhood, they may do so through two intertwined pathways. First, some individual risk factors, even if they are not themselves stable over time, may have consequences that are not easily undone and that lead to narrower pathways of opportunity. Second, there exist, in some children, risk factors that are very stable

Table 1
Preschool (Ages 3–5) Predictors of Unemployment during the Transition to Adulthood

Predictor Variables	Change in Probability of Experiencing Unemployment (%)	Increase in Length of Unemployment (in months)	Significant Multivariate Predictor
Male	7.5	1.1	✓
Human Capital			
Low parental occupational status	20.1	3.0	✓
Low intelligence	20.0	3.0	✓
Social Capital			
Single-parent family	11.5	1.8	✓
Deviant mother-child interaction	ns	ns	ns
Personal Capital			
Difficult temperament	22.9	3.5	✓

Note: N = 954; ns = not a significant predictor variable.

and resistant to change. If there are no sustained interventions that successfully eliminate these risks, we would expect prediction from earlier measures to be comparable to later prediction.

Outcomes for the Dunedin sample

In the analyses reported in our article, we systematically tested which personal and family characteristics placed youth at risk of unemployment, and how early in the child's life course a trajectory of risk for unemployment appeared to begin. We also asked whether these characteristics were influential primarily because they truncated education, or whether they continued directly to influence the likelihood of stable employment.

We examined the relationship between variables indexing human, social, and personal capital when children were aged 3–5, 7–9, and 15. Our findings document the importance of reaching across disciplinary boundaries, for these index variables made separate and significant contributions to the prediction of future unemployment whether they were measured in adolescence, late childhood, or early childhood. In the category of human capital, lack of high school credentials, poor reading skills, lack of parental resources, and low IQ all contributed to the risk of unemployment. In the category of social capital, growing up in a single-parent family, conflict within the family, and lack of attachment to school increased that risk. In the category of personal capital, children involved in antisocial behavior were at greater risk of unemployment. Of particular interest to those designing interventions with preschool children are five variables in our multivariate equations for 3–5-year-olds that made significant and independent contributions to a child's risk of later unemployment: being male, a parent's low occupational status, the child's IQ, having a single parent, and having a difficult temperament. (See Table 1.)

Even after we took into account the duration of education, individual and family differences continued to have unique and often significant effects on the risk of unemployment. Adolescents who lacked high-school qualifications, had poor reading skills, were uninvolved in school, grew up in single-parent households, and engaged in antisocial behavior were at risk of unemployment regardless of when they had left school, possibly because these characteristics directly influence job-search behavior and job performance. But neither adolescent depression or anxiety nor poor physical health proved to be significant predictors of unemployment.

Our study has limitations. First, in testing hypotheses about the predictors of unemployment, we left unexamined the potential causal mechanisms that generated these predictions. We know that antisocial behavior predicted unemployment, but we do not yet know what this reflects. Does antisocial behavior influence job-search mechanisms? Are antisocial youth selected into high-turnover jobs? Do such youth obtain jobs, only to be fired because they generate conflict in the workplace? Second, we focused only on one point in the life cycle. We do not know whether the same factors will continue to influence the risk of unemployment in later life.

Acquiring a job is a central developmental task of the transition from adolescence to adulthood. Our study helps to identify those substantive variables—e.g., antisocial behavior, access to social capital—that should be routinely incorporated into future studies of labor-market outcomes for young people. Our findings suggest that the preschool years are not too early to intervene to prevent employment problems and underscore the importance of those preschool programs that have shown significant economic and social benefits through adulthood. It is not simply a lack of skills that make youth vulnerable to unemployment; rather, psychosocial and family characteristics that emerge early in the life course are implicated in a turbulent—or failed—transition from school to work. ■

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[1]T. E. Moffitt, "Adolescence-limited and Life-course-persistent Antisocial Behavior: A Developmental Taxonomy," *Psychological Review* 100 (1993): 674–701. (See also "Do Intervention Programs for Young Children Reduce Delinquency and Crime?" in this issue.

[2]A. Caspi, B. R. E. Wright, T. E. Moffitt, and P. A. Silva, "Early Failure in the Labor Market: Childhood and Adolescent Predictors of Unemployment in the Transition to Adulthood," *American Sociological Review,* forthcoming.

[3]See P. A. Silva and W. Stanton, eds., *From Child to Adult: The Dunedin Multidisciplinary Health and Development Study* (New

Robert J. Lampman Memorial Lectures

To honor Robert Lampman, founding director and guiding spirit of the Institute for Research on Poverty until his death this year, a fund has been established to support an annual lecture by a distinguished scholar on the topics to which Lampman devoted his intellectual career: poverty and the distribution of income and wealth. This memorial has been established by the Lampman family, with the help of the University of Wisconsin Foundation. The lecture series will be organized by the Institute for Research on Poverty, in cooperation with the University's Department of Economics. The series offers a special opportunity to maintain and nurture interest in poverty research among the academic community and members of the public. Plans are now under way for the first lecture, to be held in 1998. The Institute extends its deep appreciation to the Lampman family and other donors for making this opportunity possible.

Further contributions to the fund are welcome, to ensure continuation of the lectures in future years. Donations may be made to the Robert J. Lampman Memorial Fund, University of Wisconsin Foundation, 1848 University Avenue, P.O. Box 8860, Madison, Wisconsin 53708-8860.

An Invitation to Minority Scholars in Poverty Research

The Institute for Research on Poverty offers the opportunity for minority scholars in the social sciences to visit IRP, interact with its faculty in residence, and become acquainted with the staff and resources of the Institute. The invitation extends (but is not restricted) to those who are in the beginning years of their academic careers. The intent of the program, which is supported by the University of Wisconsin–Madison, is to enhance the skills and research interests of minority scholars and to broaden the corps of poverty researchers.

Visits of up to two weeks duration by two scholars can be supported during spring semester 1998 and during the academic year 1998–99. The scholars will be invited to give a seminar, to work on their own projects, and to confer with an IRP adviser, who will arrange for interchange with other IRP affiliates.

Applications will be reviewed, and the visitors selected, by the IRP Executive Committee. Interested scholars should send a letter describing their poverty research interests and experience, the proposed date(s) for a visit, and a current curriculum vitae to Betty Evanson, Institute for Research on Poverty, 1180 Observatory Drive, Madison WI 53706; fax: 608-265-3119; e-mail evanson@ssc.wisc.edu. Deadline for applications for a visit during spring semester 1998 is December 1, 1997; for a visit during the 1998-99 academic year, the deadline is May 1, 1998.

Caspi and others, notes continued

York: Oxford University Press, 1996). Note that this study was a cross-section of the entire city population.

[4]T. E. Moffitt, A. Caspi, P. A. Silva, and M. Stouthamer-Loeber, "Individual Differences in Personality and Intelligence are Linked to Crime: Cross-Context Evidence from Nations, Neighborhoods, Genders, Races, and Age-Cohorts," in *Current Perspectives on Aging and the Life-Cycle*, Vol 4, *Delinquency and Disrepute in the Life Course: Contextual and Dynamic Analyses*, ed. J. Hagan (Greenwich, CT: JAI Press), pp. 1–34

[5]In New Zealand in 1994, unemployment was 18 percent among 15–24-year-olds; in 1992–93 it was 10.1 percent for adults, above the OECD average.

Do intervention programs for young children reduce delinquency and crime?

Editor's note: *Mounting juvenile crime and the less than satisfactory results of efforts to change the behavior of adolescents at risk of delinquency have led to a search for more effective solutions. Part I of this article summarizes some major findings from a symposium, held in April 1997 by the Society for Research in Child Development (SRCD), that reviewed the record of some frequently cited early childhood programs in reducing the incidence of aggression, delinquency, and crime among participants. Because policy makers need to know not only whether programs have effects but also whether they are more or less effective than alternatives, Part II summarizes two studies that seek to establish actual and potential costs and benefits for different approaches, including programs for troubled teenagers and incarceration of juvenile offenders.*

I. The effects of some early childhood interventions on delinquency and crime

Early childhood interventions aim to increase children's cognitive functioning, academic achievement, and employment prospects, to improve their socioemotional development, and to enhance family life by education and training for their parents. These goals may also affect characteristics in young children that predict later chronic delinquency. The strongest predictors are severe antisocial behaviors—frequent fighting, hitting, stealing, vandalism, lying—but low socioeconomic status, low cognitive ability (especially low verbal ability), and inconsistent or harsh parenting practices are also important.[1]

Because delinquent behavior develops through the complex interplay of multiple factors across multiple settings—home, school, and neighborhood—early interventions that seek to change the home and school environments may plausibly be expected to reduce the risk factors associated with later delinquency.[2] The success of early interventions in affecting children's later school achievement gives reason also to explore their possible effects on delinquent behavior. However, none of the better known and most carefully evaluated early childhood programs was specifically designed to prevent juvenile delinquency. Thus any effects of early childhood programs on antisocial behavior and delinquency are likely to be mediated by improvements in other areas, as the programs affect children's cognitive and social functioning and family relations. (As a comparison, p. 45 describes a program that is specifically directed at reducing conduct disorders in children, the Fast Track program.)

The first question is whether early childhood programs have any effects on conduct problems at all. Those who believe that they do almost invariably cite the Houston Parent-Child Development Center and High/Scope Perry Preschool programs as successful exemplars. This article summarizes findings for the long-term effects of the Houston and Perry programs and for two other interventions, the Chicago Child-Parent Center and Expansion Program and the High/Scope Curriculum Comparison study in Michigan (see Table 1).[3] All four programs served preschool children, mostly minorities; all included control groups. But there are differences in their models of service delivery, their timing and duration, and the extent to which parents were required to be actively involved.

The Houston Parent-Child Development Center

In 1970, Parent-Child Development Centers (PCDCs) opened in Birmingham, New Orleans, and Houston. Survivors of an originally much more ambitious program, they were developed in response to criticisms of Head Start—that by enrolling children only after age 3, it began too late to be effective, and that its programs lacked continuity. The PCDCs had the same goal as Head Start, to promote the social competence of low-income children (see Reynolds, "The State of Early Childhood Education," in this issue), but they began at a much earlier age: The Birmingham and New Orleans centers took children as young as two months, most of them African-American; the Houston centers enrolled one-year-old Mexican-American children, recruited from among low-income, overwhelmingly two-parent families in the barrios of Houston (see Table 1). Only the Houston program explicitly included in its goals the prevention of behavior problems in children.

"Delinquency" in juveniles in general defines behavior that would be criminal if the child were an adult. In the educational and mental health fields, some of these behaviors may be termed "antisocial behaviors," and children or youths who demonstrate repeated episodes of such behavior may be diagnosed as suffering from a "conduct disorder."

The Houston program combined a home-based first-year program with a center-based second-year program. During the first year, paraprofessionals made 26 to 30 home visits with mothers and babies, each lasting about an hour and a half; the program also offered six family workshop sessions for the entire family. In the second year, mothers

Table 1
Effects of Selected Early Childhood Programs on Delinquency and Crime

Program	Characteristics & Duration	Population & Sample Size	Date Program Began	Age at Entry	Age at Last Assessment	Delinquency & Crime Reports
Houston Parent-Child Development Center	Year 1: Home visits and family workshops Year 2: Center-based full-day child care and parent program	Low-income Mexican-Americans; random assignment of 147 experimental and 169 control families; high attrition rate	1970	12 mo	9–16 yr	Earlier effects on conduct disorders did not appear to persist into high school
Chicago Child-Parent Center Program	Basic skills curricula, heavy emphasis on parent involvement in activities, some health services, and children's reading skills. Children enrolled for periods ranging from 1–6 yr in preschool, kindergarten, & grades 1–3 (expansion program)	Poor families in low-income Chicago school districts; 95% African-American; 1,539 children in sample	1967	3 or 4 yr	Up to age 16	Less delinquency among long-time participants at ages 13–14, but no apparent relationship at ages 15–16
High/Scope Perry Preschool Study	Home visits & preschool program; 2 yr	Poor African-American children; random assignment of 58 experimental, 65 control children	1962	3 yr	27 yr	Significantly fewer lifetime arrests, adult arrests, including misdemeanor and drug-related crimes
High/Scope Preschool Curriculum Comparison Study	Preschool program using Direct Instruction, High/Scope, or Nursery School approach; 2 yr	68 children from poverty families; random assignment to 3 curriculum approaches	1967	3 or 4 yr	23 yr	Significantly lower incidence of antisocial behavior and felony arrests in 2 of 3 groups

Note: A more extended tabulation and assessment of program effects in the area of delinquency and conduct disorders is H. Yoshikawa, "Long-Term Effects of Early Childhood Programs on Social Outcomes and Delinquency," *The Future of Children* 5, no. 3 (1995): 51–75. For program descriptions see also W. S. Barnett, "Long-Term Effects of Early Childhood Programs on Cognitive and School Outcomes," *The Future of Children* 5, no. 3 (1995): 25–50.

and children came to the center four mornings a week for nine months. The two-year-olds were in a nursery school that had a strong cognitive and language-training component. The curriculum for mothers was designed to encourage them to be affectionate, to use praise appropriately, to engage children in verbal interactions, to increase opportunities for intellectual stimulation.[4] Mothers were trained to provide the continuity that critics believed to be lacking in Head Start. In all, seven cohorts of children were enrolled.

Four follow-up studies of the Houston program were conducted over the next fifteen years.[5] At the end of the two-year program, researchers found solid differences between participating and nonparticipating mothers in their relations with their children—a major goal of the program, because research has found that mother-child interactions at age 3 can be used to predict behavior problems in school. In the first two follow-up studies of the Houston PCDC (children were aged 4–7 and 8–11, respectively), significantly more control than program children were scored as impulsive, restless, destructive, and involved in fights.[6] The school achievement of program children was also higher, as measured by the Iowa Test of Basic Skills.

The fourth follow-up took place in all three PCDC cities when children were aged 9 to 16 years. In all, researchers collected data from mothers, teachers, and school counselors on 584 program and control children and 473 siblings—about 90 percent of the sample for New Orleans and Birmingham, and about 70 percent of the Houston sample. They also examined juvenile court records. Three issues were of particular interest. Would the other two PCDCs show primary prevention results for conduct disorders? Would they extend to younger and older siblings of the children in the three cities? Would the Houston findings for conduct disorders continue into high school for all cohorts?

The answers to the first two questions were negative. In Birmingham and New Orleans, researchers could detect no program effects on children's conduct disorders or school achievement. Nor did there appear to be effects for siblings of children in the three cities. And the answer to whether the behavioral effects continued into high

school for the Houston group was mixed. On measures of conduct disorders, there were again no differences between the percentages of program and control children who fell within the clinical range (that is, the range of scores that might lead children to be referred for treatment). Delinquency rates were very low for the Houston PCDC (they were higher in New Orleans and Birmingham), but the program appears to have had no effects. Mothers reported that the program was continuing to have positive effects on their children's behavior; teachers found no differences. Part of the explanation is that it proved very difficult to follow up with the older children in the sample. Teachers had very little individual contact with them, and several Houston high schools attended by sample members were in disarray. Researchers also determined that the significant differences in Houston were largely due to the scores of the first four cohorts, suggesting that attempts to replicate the program met with diminishing success.

At this point, any conclusions about the long-term effects of the Houston program must be anecdotal, for the analyses for the fourth evaluation have not been completed. Study director Dale L. Johnson notes that the Houston PCDC was neither a parent education program nor an early childhood program, but a *parent-child interaction* program. It emphasized family relationships and achieved significant improvements in aspects of parenting that are demonstrably linked to behavior problems. But Johnson points to growing evidence that there is a high incidence of depression among low-income women and also a strong relationship between maternal depression and child behavior problems; he speculates that intervention and treatment of depression in the context of these programs might have added to their effectiveness in preventing conduct disorders in children.[7]

Chicago Child-Parent Center and Expansion Program

The Chicago Child-Parent Center (CPC) program, a federally funded early childhood intervention for low-income children and parents, currently serves over 5,000 children in preschool, kindergarten, and grades 1–3 in 24 sites. Its goal is to improve school achievement for economically and educationally disadvantaged children; to that end, it emphasizes comprehensive nutritional and health services, parent education and school involvement, and children's literacy and reading skills.

Detailed information exists on participants through the Chicago Longitudinal Study, a prospective investigation of the CPC program (see Table 1). A total of 1,150 children participated in the program for from one to six years, beginning in 1983. Over 90 percent were eligible for the free school lunch program and all came from neighborhoods with the highest poverty rates in Chicago. There is also an alternative-treatment comparison group of 389 children who participated in a locally funded kindergarten program for low-income families.

The CPC program provides a good test of the impact of early childhood programs on delinquency because its relatively lower level of funding is more typical of current early childhood programs than most model programs have been; it provides both educational and family support services; and it is implemented in the poorest Chicago neighborhoods where children are at high risk of juvenile delinquency. Because children could participate in the program for different periods of time, ranging from one to six years, it is possible to investigate whether the timing and duration of their participation had a differential impact.[8]

Researchers examined two issues:

1. Is participation in the CPC program during ages 3–9 associated with lower rates of delinquency up to age 16?

2. Which elements in the program were responsible for its effects on delinquent behavior? This—a logical question about all such interventions—has proved extremely difficult to establish. Differences in duration and timing within the Chicago program allow researchers to explore pathways by which programs for young children may affect later conduct. Such pathways may include cognitive readiness, social adjustment, children's perceptions of their own competence in school, parents' participation in school activities, school mobility (a child's changes of school between grades 4 and 7), and school quality.

Delinquency was measured from school records of problem, illicit, or illegal behavior in grades 7–10, teachers' ratings of acting-out behavior for children in grades 6–7, and grade 10 students' own reports of delinquent behavior.[9] These ratings were correlated with measures of the extent to which children and their families had participated in the program and a "risk index" which took into account the multiple risks which many children faced, including their parents' education and employment, single-parent family, minority status, or neighborhood poverty.

The results, as in Houston, were mixed. Children who participated in both the preschool/kindergarten and the primary-school phases of the CPC had a significantly lower delinquency rate at ages 13–14. Children who participated through the second grade had a delinquency rate 4 percentage points less than those who experienced less extensive interventions; those who stayed with the program through the third grade showed a 6-percentage-point reduction. Two important pathways associated with this lower delinquency rate were reduced school mobility and greater parental involvement. However, participation in the extended intervention and length of time in the program showed no relationship to children's delinquency rates at ages 15–16, nor to teachers' and students' reports of acting-out or delinquent behavior. Those children who participated in the preschool program showed marginally lower rates of school-reported delinquency.

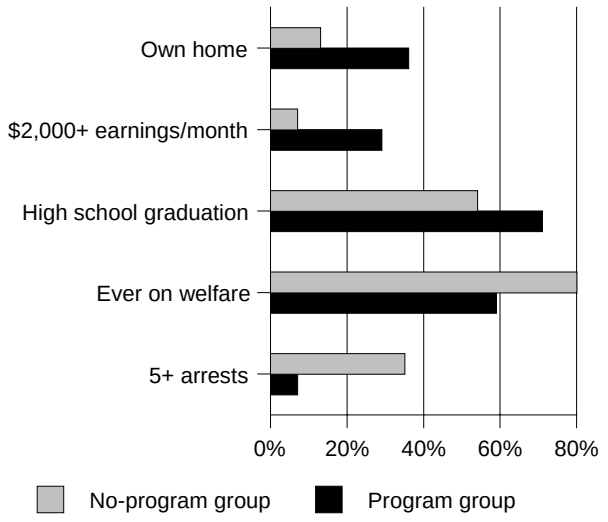

Figure 1. Perry Preschool Study findings at age 27. Source: L. J. Schweinhart, "Evidence of Preschool Crime Prevention in Two Studies," paper presented at the SRCD Seminar on Early Intervention Effects on Delinquency and Crime, Washington, D.C., April 1997.

The mixed findings for the effectiveness of the CPC in preventing delinquency do not parallel its clear and positive results on school achievement and social competence. Do the reasons lie in the sensitivity of the measures that researchers used, or are school-based programs likely to be overwhelmed by the influence of peer groups, neighborhood characteristics, and community environment on delinquency? These are questions that will be further examined.

Two High/Scope studies

The High/Scope Perry Preschool Program. Between 1962 and 1967, the High/Scope Perry Preschool provided a two-year program for African-American children living in poverty and at risk of school failure (see Table 1).[10] At ages 3 and 4, children participated in a preschool program that provided five 90-minute classes a week for seven months in each of two successive years.[11] The curriculum was designed to promote intellectual, social, and physical growth through child-initiated learning activities. Children could plan, do, and review their own activities, and engaged in active learning with materials, people, events, and ideas. Teachers made weekly 90-minute home visits to involve parents as partners in their children's education.

The High/Scope Perry Preschool is perhaps the best-known of early childhood programs, and the optimism evoked by early program effects on social competence gave impetus to the Head Start program. The effects of the Perry program, a more enriched program than Head Start, have persisted through age 27 (see Figure 1). In the area of crime and delinquency, the results are unequivocally positive. At age 27, the program group had significantly fewer lifetime arrests and adult arrests, including misdemeanor arrests, and drug-related crimes. Only 12 percent of the males in the program had been arrested five or more times, compared to 49 percent of the control group males. Only 7 percent of the program group had ever been arrested for drug dealing, whereas 25 percent of the control group had been.

The High/Scope Preschool Curriculum Comparison Study. Following directly on the High/Scope Perry Preschool program, the Curriculum Comparison Study provided a systematic comparison of different curriculum models for young, disadvantaged children. Between 1967 and 1970, the study randomly assigned 3- and 4-year-olds to one of three groups, each of which experienced a distinct preschool curriculum:

1. In the Direct Instruction Model, teachers followed a script to directly teach children academic skills, enforcing their attention and rewarding them for correct answers to questions.

2. In the High/Scope model, children followed the curriculum used in the High/Scope Perry Preschool, described above.

3. In the traditional Nursery School Model, teachers responded to children's self-initiated play in a loosely structured, socially supportive setting.

Children in all groups attended preschool for two-and-a-half hours five days a week. Home visits lasting about 90 minutes took place once every two weeks; visitors modeled each curriculum approach for the parents. The children attended preschool programs for two years (except for a class of eight Direct Instruction children who attended for only one year). At age 23, 52 of the 68 study participants (76 percent) were interviewed; attrition was evenly distributed across the curriculum groups.

Through age 23, the three groups of children did not differ significantly in many aspects, such as average IQ, academic test scores or high school graduation rates. But in the area of social behavior, a pattern of significant curriculum-group differences did develop, with the Direct Instruction group showing a stronger disposition toward antisocial behavior. Only 6 percent of either the High/Scope and Nursery School groups had needed treatment for emotional impairment or disturbance during their schooling, but 47 percent of the Direct Instruction group did. At age 23, only 10 percent of the High/Scope group had ever been arrested for a felony, and none had ever been arrested for a property crime; comparable figures for the Direct Instruction group were 39 percent and 38 percent, respectively. At ages 22–23, only 9 percent of the Nursery School group had been arrested for a felony, and none had ever been suspended from work. In the Direct Instruction group, 34 percent had felony arrests at ages 22–23, and 27 percent had been suspended.

What is to be made of these very different results in the area of delinquency and crime? For one, they raise questions about the exact function of home visiting, an impor-

tant part of all the preschool programs discussed in this article. Home visiting was an integral part of all three curriculum programs in this study, yet the results are quite different.[12]

One possible explanation for some differences is suggested by the study findings about volunteer activity: 43 percent of the High/Scope group and 44 percent of the Nursery School group had done volunteer work, compared with only 11 percent of the Direct Instruction group. Researchers link this greater disposition toward positive community involvement to the different curricula that the children experienced. As preschoolers, the first two groups had participated in curriculum models with explicit social-interaction objectives, whereas the Direct Instruction group engaged mainly in scripted interaction with adults. The High/Scope and Nursery School teachers observed and responded to the children's actions, while the Direct Instruction teachers followed their own agenda. Because parents were treated as full partners in implementing the curriculum models with their children, parents as well as teachers may have helped children shift their behavior in ways that led to these striking long-term differences.

II. Comparing alternative policies in preventing delinquency and crime

Advocates of incarceration point out that more than 50 percent of all juvenile arrests involve about 6 percent of chronic youthful offenders.[13] Identifying and locking up the chronic offenders, they argue, is a far more efficient way to target juvenile crime than scattershot programs directed at hundreds of thousands of children, most of whom will never commit an offense. Two recent studies canvass the comparative costs and benefits of different approaches: *Diverting Children from a Life of Crime*, by Peter Greenwood and his colleagues from RAND, and "Allocating Resources among Prisons and Social Programs in the Battle against Crime," by John Donohue, a professor of law at Stanford, and Peter Siegelman, an instructor at Yale Law School.[14]

In a short article it is impossible fully to recapitulate these long, closely argued studies; here we merely outline the arguments of the authors and some of their more salient conclusions. Although both studies consider some of the same programs, their approach is very different. Greenwood and his colleagues construct their analysis upon a static framework that assumes that the population, age-specific crime rates, and other factors affecting crime remain as they are today. Donohue and Siegelman offer what is essentially a "thought experiment." They ask: What would happen if we allocate to social programs the money we will have to spend in 15 years' time on prisons for the current crop of 3-year-olds, if we don't change our present incarceration policies? Both show how difficult it is to make these estimates, and how dependent are results upon authors' assumptions and procedures.[15]

Diverting children from a life of crime

Greenwood and his colleagues examine four common approaches to intervening in the lives of children who are at some risk of delinquency or are already in trouble with the law. These are:

1. Early interventions for children whose family or sociodemographic characteristics place them at risk of later antisocial behavior.

2. Interventions for families whose children are already showing troubled behavior, in particular the parent training program developed at the Oregon Social Learning Center.

3. School-based interventions—in effect, graduation incentives—as provided through the Quantum Opportunity Program funded by the Ford Foundation.

4. Interventions for juvenile offenders: probation, tracking and in-home supervision by private agencies, and out-of-home placements of many kinds ranging from wilderness camps to secure facilities.

In calculating the cost-effectiveness of delinquency prevention strategies, the authors ask:

1. What percentage of the population is to be treated, and how much crime do they commit?

2. What is the cost per treatment?

3. How effective is each program at preventing crime?

4. How will effectiveness change if the program is expanded?

5. How long do effects persist after treatment has ceased?

This articles gives details only of the calculations for the early childhood program.

The population treated. Children from families where parenting is inconsistent, inappropriate, and inadequate

> Public discussions of violence-prevention programs usually emphasize those targeting high-risk youths in the age ranges where violence is most prevalent, around 15 to 20 years of age. . . . Unfortunately, . . . their value in reducing violence remains a matter of speculation or faith.
>
> Greenwood and others, *Diverting Children from a Life of Crime*, p. 7.

are at greater risk of delinquency. Longitudinal studies consistently identify a close association between ineffective parenting and being poor, a single parent, and young.[16] Greenwood and his colleagues, therefore, select children of young, single, poor mothers as the target population for the earliest interventions. They base their discussion upon the costs and results of the Syracuse University Family Development Research Program,[17] Head Start, the Elmira nurse home visiting study (see pp. 47–50), the Houston PCDC, and the High/Scope Perry Preschool program.

In 1994, one out of five U.S. children lived in households whose income was below the poverty line. In about 30 percent of all births the father is not present or is unwilling to provide any kind of economic support. In all, the authors estimate, home visiting/day care and parent training programs would be applicable to about 25 percent of the population.

Nature and cost of the program. The authors postulate an early childhood program that includes two core elements: weekly home visits beginning by the third trimester of pregnancy and running through the child's second year, and full-time day care and education from ages 2 to 5. The assume a cost of $2,700 per child for each year of home visitation; they use a cost of $6,000 per year for day care and early childhood education. The total estimated costs per child over the five years of the program amount to $29,000.[18]

The costs of the other three types of programs are $3,000 for the typical one-time parent training program, $12,520 for graduation incentives over three years, and $10,000 for one year of delinquent supervision.[19]

Effectiveness in reducing crime. In extrapolating from existing programs, the authors assumed that model programs which are expanded and applied on a large scale lose a certain percentage of their effectiveness, and that positive program effects begin to decay when the program ends. They used FBI crime data and national surveys to calculate the number of serious crimes prevented per program participant. Their comparative estimate of the number of serious crimes prevented per million dollars of program cost is shown in Figure 2. This criterion, they note, is only one among many, and it would not necessarily satisfy policy makers. For example, a highly cost-effective approach that prevented only a tiny portion of a state's crimes might not be viewed as very useful.

Nevertheless, these rough estimates of costs and benefits suggest that three of the four interventions examined compare favorably with a high-profile incarceration alternative such as the long mandatory sentences imposed by California's "three-strikes" law. The authors think that programs providing graduation incentives for high-risk youths are the most cost-effective; moreover, their

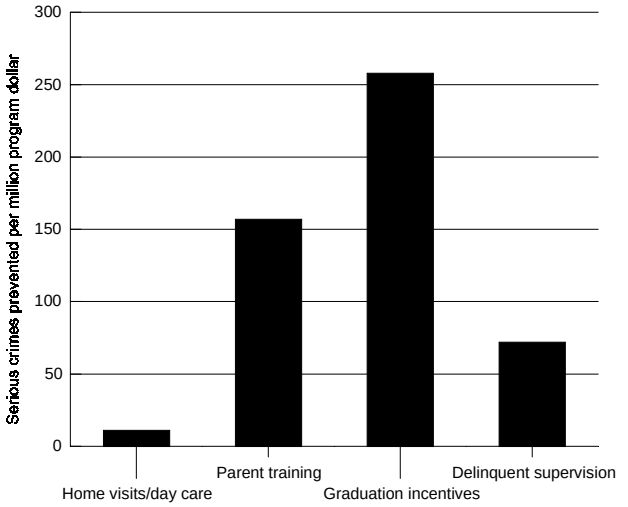

Figure 2. Serious crimes prevented by selected social programs. Source: P. W. Greenwood, K. E. Model, C. P. Rydell, and J. Chiesa, *Diverting Children from a Life of Crime: Measuring Costs and Benefits* (Santa Monica, CA: RAND, 1996), p. 4.

results begin to show soon after the program is implemented—these youths are very close to their most crime-prone years. Parent training is reasonably cost effective, but its effects on delinquency are delayed for about five years, because it takes place when children are aged about 7 to 10; it has also proved difficult to enrol many parents in such programs. Early home visiting and day care interventions require very large expenditures to affect large numbers of youths, and there is almost a 15-year delay between the expenditure and its visible effects on serious street crime. These interventions, however, affect one form of crime immediately: they reduce child abuse by parents in participating families.[20]

Allocating resources among prisons and social programs

Donohue and Siegelman ask whether the current U.S. policy of increasing reliance on incarceration and declining use of social spending is the best way to spend crime-reduction dollars. The prison population has risen very rapidly in the last 30 years, and the returns to imprisonment are diminishing. If the current prison population were to double, the additional social cost would be roughly $36 billion a year, but crime would decrease by only about 10–20 percent.

The authors examine basically the same categories of social programs as Greenwood and his colleagues—early childhood interventions, family-based treatment for children with behavior problems, therapeutic interventions for high-risk adolescents—but also consider the effects of labor market interventions designed to improve education and job skills, such as the Job Corps, a residential half-year program for at-risk but not delinquent teenagers. Most such programs, they note, have been evaluated only in small-scale or pilot projects, or over relatively

> It is frequently noted that it costs more to house someone in prison for one year than it would to send them to Harvard for the same length of time. The statement is usually followed by an admonition to spend the money up-front on educating the potential criminals, making it unnecessary to send them to prison down the road.
>
> Donohue and Siegelman, "Allocating Resources among Prisons and Social Programs," p. 33.

short periods of time. Many of the evaluations have methodological problems, and did not use an economic methodology that allows researchers to calculate their costs and benefits. Thus it is often unclear whether the effect is large enough to justify the program.

Looking at results from the Perry and Syracuse preschool programs, the Houston PCDC, and the Yale experiment,[21] the authors comment that the programs that successfully reduced delinquency among participants were small in scale and high in both quality and cost. The Perry program, for instance, cost almost 2.5 times as much as the typical Head Start program; the Syracuse program was roughly seven times as expensive as two years of Head Start. These programs intervened early with children and their families; some programs, for example, the Elmira nurse-visiting study, began during the mother's pregnancy. They attempted not only to teach cognitive and emotional development, but also to buttress family relationships by teaching effective child-rearing and discipline skills, working with both parents and children. These small, pilot programs appear to have generated substantial reductions in subsequent criminal behavior among the children who experienced them.

Donohue and Siegelman review two programs that Greenwood and his colleagues found to be effective: the parent training program of the Oregon Social Learning Center and the Quantum Opportunities Program. In the short-run, the results of parent training programs on the Oregon model are impressive and very cost-effective. But it is not yet clear that these will continue to have an influence on behavior or to deter actual delinquency as opposed to "aversive acts" (hitting one's siblings or abusing one's parents). As for the Quantum Opportunities Program (the clear winner on cost effectiveness in the RAND study), there are at least three reasons to be cautious in concluding that it is a useful technology for crime prevention: the low statistical significance of the differences in police contacts between experimental and control groups, the wide variability among the five program sites, and the dubious validity of the self-reported delinquency data.

The authors are equally cautious about the Job Corps. It looks like a very attractive program: it appears to generate significant reductions in criminal behavior not only during the year when participants are in residence but also in the four years thereafter. But these results, based on the project's Final Report, are 15 years old.[22] The program's operation and its effectiveness under different labor market conditions may have changed.

Finally, Donohue and Siegelman ask: If the social resources that will be expended a decade or more from now on incarcerating today's youngsters were spent instead on the most promising social programs, would they generate roughly comparable levels of crime prevention? If policy makers were to opt for prisons, a 50 percent increase in future incarceration for the 1993 crop of 3-year-olds would cost between $5.6 billion and $8 billion (in 1993 dollars) and would reduce crime by 5–15 percent. How much social intervention could the diverted resources buy?

Even under the most pessimistic assumptions about how much cutting the prison population would reduce social costs, the sum available would clearly fund some promising social programs on a large scale. Such programs, say the authors, would not or could not be made universally available.[23] But if these funds were targeted upon the half-million 3-year-olds supported by AFDC in 1993, we could spend roughly $940 to $1,040 per child each year, through the end of high school**.** If we limited eligibility to children now enrolled in Head Start, we could spend about 30 percent more than that per child, or we could expand the Head Start program to roughly 1.3 million 3-year-olds. (Given the lack of evidence that Head Start reduces delinquency, the authors say, this would be an unwise expenditure.)

If we chose to implement the more expensive and effective Perry program, we could reach only about 18 percent of the 3-year-olds, even under the most optimistic assumptions. Bearing in mind that 6 percent of boys commit more than half the crime for boys of their age, could we shape a Perry-like program with sufficient precision to encompass the majority of those 3-year-old children who are destined to become the most active 6 percent of delinquents?

Moral, ethical, and constitutional issues immediately surface. Even if we knew for certain that some programs reduced criminality, and knew in advance who the potential criminals might be, assigning individuals to participate in these programs is fraught with difficulty. In fact, we know neither of these things with certainty, and would have to make choices based upon other factors. Targeting groups by their demographic or racial characteristics, or by gender, would be unfair and might stigmatize such groups as inherently crime-prone, with adverse consequences. Should girls, for example, be excluded from preschool enrichment programs that improve children's life chances, simply because they commit fewer crimes than boys? Should programs be targeted to

African-American male 3-year-olds, because African-American males make up 45 percent of those in prison? Even if a high-payoff, targeted prevention strategy of this kind could be designed to avoid ethical and practical pitfalls, it might not be politically palatable. Its main educational and social gains and lower crime rates accrue to program participants and their families and neighborhoods, which are likely to consist of economically disadvantaged minorities with little clout.

All this being said, both the calculations of the RAND researchers and the thought experiment of Donohue and Siegelman suggest that society may well benefit from seeing whether interventions that have shown promise on a small scale could be expanded. Given the clear benefits that early intervention programs have brought to children's cognitive and school performance, it may be possible also to use them to address children's behavioral problems. As Richard B. Freeman has observed, "The costs of incarceration are such that even marginally effective prevention problems can be socially desirable."[24] ■

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[1]Longitudinal studies of the precursors and risk factors of delinquent behavior have been carried out at the Oregon Social Learning Center; see, for example, G. R. Patterson, J. B. Reid, and T. J. Dishion, *Antisocial Boys* (Eugene, OR: Castalia Press, 1992). The Dunedin Multidisciplinary Health and Development Study (see p. 34), has followed a representative birth cohort of 1,000 New Zealand men and women who were born in 1972–73; see P. A. Silva, ed., *From Child to Adult: The Dunedin Multidisciplinary Health and Development Study* (New York: Oxford University Press, 1997).

[2]See H. Yoshikawa, "Long-Term Effects of Early Childhood Programs on Social Outcomes and Delinquency," *The Future of Children* 5, no. 3 (1995): 52.

[3]At the symposium, preliminary findings for the Abecedarian project were presented by S. H. Clarke and F. A. Campbell, both of the University of North Carolina at Chapel Hill. There exist intriguing comparisons, still being analyzed, with the Perry Preschool findings.

[4]D. L. Johnson, "Parent-Child Development Centers for Infants and Conduct Problems in Early Adolescence: The Perils of Prevention," paper presented at the SRCD Seminar on Early Intervention Effects on Delinquency and Crime, Washington, D.C., April 1997.

[5]The first three studies included only the first four cohorts, and retrieved about 60–70 percent of the sample.

[6]For example, there were significant differences between program and control children on the 11-item AML screening for aggressive and moody behaviors, and for learning difficulties.

[7]For instance, strong evidence for clinical depression has been found in about half of the young mothers in a similar program, Avance, in San Antonio (see p. 25).

[8]These results are reported in A. J. Reynolds, H. Chang, and J. A. Temple, "Early Educational Intervention and Juvenile Delinquency: Findings from the Chicago Longitudinal Study," paper presented at the SRCD Seminar on Early Intervention Effects on Delinquency and Crime, Washington, D.C., April 1997.

[9]Children who are disruptive in class, fidget or cannot sit still, disturb others while they are working, constantly seek attention, aggressive toward peers, defiant, obstinate, and stubborn are scored on a continuum of "acting-out" behaviors from no problems to very serious problems. Acting-out behavior is significantly related to grades and parents' ratings of adjustment.

[10]The High/Scope findings are reported in L. J. Schweinhart, "Evidence of Preschool Crime Prevention in Two Studies," paper presented at the SRCD Seminar on Early Intervention Effects on Delinquency and Crime, Washington, D.C., April 1997.

[11]Forty-five children attended for two years and 13 for one year.

[12]Evaluations of other direct instruction programs have found positive results. The reasons for the differences remain to be explored.

[13]P. W. Greenwood, K. E. Model, C. P. Rydell, and J. Chiesa, *Diverting Children from a Life of Crime: Measuring Costs and Benefits* (Santa Monica, CA: RAND, 1996), p. 11.

[14]Greenwood and others, *Diverting Children from a Life of Crime*. J. J. Donohue III and P. Siegelman, "Allocating Resources among Prisons and Social Programs in the Battle against Crime," unpublished manuscript; this research was funded by the American Bar Foundation.

[15]Firm numbers are very hard to achieve. For example, estimates of the annual cost of locking up an inmate (in 1993 dollars) range from $25,000 to $45,000 (Donohue and Siegelman, "Allocating Resources among Prisons and Social Programs," p. 4). Greenwood and others use a figure of $21,000 annually per inmate (p. 14). As so often is the case the sum arrived at depends upon what is included.

[16]See, e.g., S. McLanahan and G. Sandefur, *Growing Up with a Single Parent: What Hurts, What Helps* (Cambridge, MA: Harvard University Press, 1994), p. 137.

[17]The Syracuse University Family Development Research Program recruited 108 low-income families, predominantly young, African-American single parents, to participate in an experimental intervention that began during the third trimester of pregnancy. The major aim of the intervention was to support parenting strategies that enhanced children's development. Participants received weekly home visits followed by day care throughout the first five years of the children's lives. Ten years after the intervention ended, 22 percent of those in the control group and only 6 percent of the experimental-program children had been referred to probation.

[18]The figure for home visiting is the cost in 1995 dollars of the Elmira nurse home visits; the day care cost is an average of the National Head Start Initiative and the High/Scope Perry Preschool costs. Schweinhart estimates the average annual cost of the High/Scope Perry Preschool program at $7,252 per participant, in 1992 dollars ("Evidence of Preschool Crime Prevention," p. 3).

[19]The graduation-incentive figures are actual costs from the three-year Quantum Opportunities Program; delinquent supervision costs are based on estimates from the Orange County, CA, probation department.

[20]See, for example, the findings from the Elmira project (pp. 47–50).

[21]The Yale Child Welfare Research Program, conducted from 1968 to 1974, was a family support intervention involving only 35 poor families who entered the program during the mother's pregnancy and exited when the child was two and a half years old. See Yoshikawa, "Long-Term Effects," p. 62.

[22]C. Mallar and others, *Evaluation of the Economic Impact of the Job Corps Program: Third Follow-Up Report* (Princeton, NJ: Mathematica Policy Research, 1982).

[23]With the possible exception of the low-cost parent training therapy, the programs are considered too expensive to provide to the entire cohort of 3-year-olds. Donohue and Siegelman set the cost of parent training at about $500. Greenwood and his colleagues add another $2,500 to that sum for management and administration (Greenwood and others, *Diverting Children from a Life of Crime*., p. 16), thus making it necessary to ration even this program.

[24]R. B. Freeman, "Why Do So Many Young American Men Commit Crimes and What Might We Do about It?" NBER Working Paper no. 5451, February, 1996.

The Fast Track Program: An experiment in the prevention of antisocial behavior in young children

Fast Track is a comprehensive, multiyear intervention designed to prevent serious and chronic antisocial behavior in children whose conduct problems at home and in kindergarten suggest they are at high risk of such behavior as they enter school. It is predicated on a developmental model that posits that the long-term prevention of children's antisocial behavior will be achieved by enhancing immediate competencies among children and their parents.[1] The project is funded primarily by the National Institute of Mental Health.

Antisocial behavior in children is a product of many influences. Low-income, high-crime communities place stresses on families that increase the risk of conduct problems among children. In such communities, families in which there is instability and marital conflict may find consistent and effective parenting difficult to achieve. The problems are compounded for children of difficult or impulsive temperament. Thus many children in such communities may enter school poorly prepared for its social, emotional, and cognitive demands. Their parents are often unable to relate effectively to school staff, and poor bonds between home and school may exacerbate a child's difficulties.

The program is located at four sites that were considered high-risk because of their crime and poverty statistics: Durham, Nashville, Seattle, and three rural counties in central Pennsylvania. In each site, two matched sets of schools were randomly assigned to intervention or control conditions. All kindergarten children from all the schools were rated by teachers and parents for school and home behavior. Combined teacher-parent scores in the top 10 percent identified high-risk children, whose families were then contacted for assessments. Those who completed these assessments were included in the sample as an experimental or a control family, depending on the assignment of the school that the child attended in first grade. In all, three successive cohorts were chosen, for a total sample of 448 children in the experimental group, and 450 in the control group. In 1996, the oldest cohort completed fifth grade.

The most intensive intervention took place in the first-grade year. There were six components to this intervention. The first, involving all children in the class, was a teacher-led curriculum directed toward the development of emotional concepts, social understanding, and self-control. The remaining five components involved only the high-risk experimental subjects. They included: parent training groups designed to promote positive family-school relationships and teach parents behavior-management skills such as the use of praise, time-outs, self-restraint; home visits to strengthen parents' self-efficacy and problem-solving skills; children's social-skill training groups; tutoring in reading for children; and peer pairing in the classroom to enhance children's ability to form friendships. The first intervention, for all children, continued each year through fifth grade. The parent and child training groups for high-risk families in the experimental group met biweekly during second grade, then monthly through the end of the project. Home visiting, academic tutoring, and child case management activities followed a criterion-based schedule.

Fast Track is being evaluated by the Conduct Problems Prevention Research Group, seven coinvestigators at four universities. Evaluations have been completed for all three cohorts through the end of first grade. The results indicate strong and consistent evidence for better social, emotional, and coping skills and more positive peer relations as a result of the interventions. Neither the parents' nor the teachers' ratings of conduct problems yielded significant differences between intervention and control children. However, both parents and teachers of children in the intervention groups rated them as having improved their behavior with peers and adults over the preceding year more than did control children. Intervention children also developed better basic reading skills. Intervention parents demonstrated more positive involvement in their children's schools, more effective discipline strategies, and more positive relations with their children. Preliminary data on progress through third and fourth grade have yielded two very important findings—intervention children are less frequently assigned to special education classes than control children, and parents report fewer home discipline problems. If these positive findings are maintained over the life course of these children, the guiding theory leads us to expect that children in the intervention group will demonstrate fewer conduct problems in adolescence than will control children. ■

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[1]Fast Track is described in detail in Conduct Problems Prevention Research Group, "A Developmental and Clinical Model for the Prevention of Conduct Disorders: The Fast Track Program," *Development and Psychopathology* 4 (1992): 509–29. Those interested in further information should contact John Coie, Department of Psychology: Social and Health Sciences, at Duke University.

Psychosocial interventions for children with chronic health conditions

Perhaps 10–30 percent of children are estimated to suffer from chronic health conditions. Such children have higher rates of mental health problems than healthy children, and many of these problems persist into adulthood. A child's serious illness or disability can also place heavy psychological and social burdens on the family. These pressing needs have spurred the development of interventions to address mental health problems and improve the social and economic functioning of chronically ill children and their families. Laurie J. Bauman and colleagues from the Research Consortium on Chronic Illness in Childhood have now provided a systematic and critical review of such interventions.[1]

Examining the medical and psychological literature between 1979 and 1993, the reviewers identify and describe psychosocial intervention programs whose efficacy has been objectively evaluated. They assess their theoretical basis and the adequacy of their design and evaluation methods, and recommend future directions both in the development of the interventions themselves and in the methodology used for evaluating them.

Of 266 articles in some way related to interventions with chronically ill children and their families, the reviewers found only 16 that met relatively modest substantive requirements: that is, they were published in a peer-reviewed journal; evaluated a planned psychosocial intervention that examined psychologic or social outcomes for participants; and met two minimal methodological criteria—the study involved an experimental group of at least 15 and a suitable comparison group.

The paucity of the acceptable evaluations was surprising in itself. And the reviewers found serious problems even with the evaluations that met their criteria. Programs were rarely described in sufficient detail. It was often unclear what was actually done, by whom, and how consistently. The reviewers could not determine what the target population was or how participants were reached and by what means. Information was absent on the substantive focus (e.g., counseling, education, skills training) of the intervention and the duration and frequency of the sessions.

The interventions themselves varied greatly. In 11 of the 15 programs described (one program was the subject of two articles), education was part or all of the intervention modality. But the main focus was sometimes the child alone, sometimes the parents, sometimes both. Programs also varied in intensity: six of them averaged only 5–6 hours of client contact, others considerably more. The duration of the interventions varied from 3 weeks to 15 months. Program participants tended to be heterogeneous "convenience samples," often institutionally based—patients at a particular clinic, for example. Children differed in age, in social class, duration and severity of the illness, and requirements for care. Studies did not report features that might influence the capacity of families to respond—whether or not they were minority and low-income or upper-income. The reviewers were, therefore, largely unable to determine whether the results of particular interventions were generalizable and, if so, to whom.

Ten studies used experimental designs with random assignment of subjects to experimental and control groups. Group and total sample sizes were, however, quite variable, and the reviewers estimated that only about half the studies would be able to detect small to medium effects. Twelve studies included some standardized measures as part of their outcome assessment, but none acknowledged that some measurement scales had not been validated for children with health problems. This is a serious omission when psychiatric or behavioral checklists are used, because medical conditions can sometimes mimic symptoms that may be attributed to psychological causes.

Despite major weaknesses of evaluation, there is, say the reviewers, good news. Most of the 15 interventions they examined worked. Several types of psychosocial outcomes were represented in these studies, among them psychiatric or behavioral symptoms, self-worth and social competence, and family functioning. Eleven studies demonstrated positive effects on at least one outcome. These programs present interesting intervention models that may be applicable in other settings. One priority for future research would be to replicate them in broader populations and different sites, and to extend them over time to assess longer-term influences. ■

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[1]L. J. Bauman, D. Drotar, J. M. Leventhal, and others, "A Review of Psychosocial Interventions for Children with Chronic Health Conditions," *Pediatrics* 100, no. 2 (August 1997): 244–51.

It worked in Elmira, but will it work in Memphis? The long-term effects of nurse home visiting on mothers' lives and children's well-being

David L. Olds, Harriet Kitzman, Charles R. Henderson, John Eckenrode, and Robert Cole

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Home visiting is now being widely promoted as a means of preventing a range of health and developmental problems in children from vulnerable families. Support for wider use of such interventions is often based upon the results of a comprehensive program of prenatal and early childhood home visitation by nurses that began in 1978 in Elmira, New York.

As with many other forms of early childhood intervention, the Elmira study has invited three questions. First, were there real long-term gains that would justify replication or expansion of the Elmira program? Second, how much did it cost, relative to its benefits? Third, is it likely that a program addressed to mostly white mothers in a semirural upstate New York community 20 years ago would also be effective at a different time and a very different place? The reports summarized in this article address these issues: they comprise the findings of a 15-year follow-up study of the participants in the Elmira experiment, and two-year results from an experiment that replicates the Elmira program in an inner-city African-American community at the present day.[1]

The Elmira home visitation experiment

Between April 1978 and September 1980, 400 young women who visited a free prenatal clinic and the offices of private obstetricians in Elmira were enrolled in a home visitation experiment. Women less than 25 weeks pregnant were actively recruited if they had no previous live births and met at least one of three sociodemographic risk criteria: they were younger than 19, were unmarried, and were poor enough that they either qualified for Medicaid or had no private health insurance. To avoid creating a program that might be stigmatized as being exclusively for the poor, the study also enrolled any pregnant woman who asked to participate and had no previous children. About 85 percent of the final sample had at least one of the three risk factors specified. (See Table 1.)

Participants were randomly assigned to one of four different programs, administered through a private agency. In group 1 (94 women), the only service provided was sensory and developmental screening for the children at 12 and 24 months of age (children were referred for further clinical evaluation and treatment if it was deemed necessary). Group 2 (90 women) received these screening services and also free transportation for prenatal and well-child care through the child's second birthday. Because groups 1 and 2, as it turned out, did not differ in their use of prenatal and well-child care (both had high rates of completed appointments), they were combined to form a single group. Group 3 (100 women) received the same services as those in group 2, and were in addition assigned a nurse who visited them at home during the pregnancy. In group 4 (116 women), the nurse continued to visit through the child's second birthday. Nurses visited about once a month before the child was born and at monthly intervals for two years thereafter.

In their home visits, the nurses provided a comprehensive educational program designed to promote effective physical and emotional care of children by parents and other family members. They also helped women clarify

Table 1
Characteristics of Participants in the Elmira and Memphis Nurse Home Visiting Experiments

	Elmira (began 1978)	Memphis (began 1990)
No. of participants	400	1139
Age younger than 19	48%	64%
Unmarried	62%	98%
African American	11%	92%
Poor[a]	59%	85%

[a]Elmira participants were defined as having low socioeconomic status if they qualified for Medicaid or could not afford private health insurance. Memphis participants were poor if their incomes were below the federal poverty line.

Table 2
Elmira Mothers' Outcomes from the Child's Birth through Age 15

Outcome	Entire Sample: Groups 1 & 2	Entire Sample: Group 4	Unmarried Low-SES Sample: Groups 1 & 2	Unmarried Low-SES Sample: Group 4
Subsequent pregnancies	2.1	1.7	2.2	1.5
Subsequent births	1.6	1.3	1.6	1.1
Time between birth of 1st and 2nd child (mo.)	37.3	41.7	37.3	64.8
Employed (mo.)	89.7	96.4	80.0	95.9
Received welfare				
AFDC (mo.)	65.9	52.8	90.3	60.4
Food stamps (mo.)	56.4	47.9	83.5	46.7
Medicaid (mo.)	70.0	61.8	95.4	72.3
Substance abuse[b]	0.43	0.34	0.73	0.41
Arrests				
Self-reported	0.22	0.09	0.58	0.18
New York State records	0.38	0.12	0.90	0.16
Child abuse/neglect[c]	0.54	0.29	0.53	0.11

Note: Groups 1 and 2, comparison group; group 3, nurse-visited during pregnancy only (omitted in table); group 4, nurse-visited during pregnancy and infancy. Outcomes adjusted for socioeconomic status, marital status, maternal age, education, locus of control, support from husband/partner, working status, and husband/partner's use of public assistance at entry into study.

[a]Total months employed over the 15 years since child's birth.

[b]Self-reported, e.g., as measured by missing work, or a motor vehicle accident resulting from use of alcohol or illegal drugs.

[c]Substantiated reports.

their goals in life and develop problem-solving skills so that they could complete their education, find work, and plan future pregnancies. The nurses used detailed assessments and protocols to guide their work, but adapted their visits to the needs of each family and developed close working relationships with parents.

Results after 15 years

For the 15-year follow-up, we were able to complete interviews with 81 percent of the original sample—90 percent of those for whom there had been no miscarriage, still birth, death (infant, child, or maternal), or child adoption. During this interview, mothers completed a life history calendar to help them recall major life events: births of other children, marriages, employment, household moves, and housing arrangements. Women were asked to estimate how often and for how long they had used Aid to Families with Dependent Children (AFDC), Medicaid, and food stamps, and the number of times they were arrested or convicted from the time of the child's birth. They were asked a series of questions regarding the impact of alcohol and illegal drugs on their lives. To compensate for the weaknesses of data acquired from recall and self-reporting over a long period, we sought to validate mothers' reports from external sources. State and county welfare records proved incomplete, but we did obtain, from Child Protective Services in New York State and agencies in other states in which families had lived, about 13 years of records for members of each treatment group. Mothers' records of arrest and conviction were also obtained from the New York State Division of Criminal Justice Services.

In the 15-year evaluation, we focused on two groups: the combined group 1–2 (the comparison group) and group 4 (the pregnancy and infancy nurse-visited group), because earlier evaluations had found that the greatest effect was exerted by the combination of pre- and postnatal home visitation. We separately examined the results for women who were both unmarried and from households with low socioeconomic status, because we believed that such households would experience higher levels of chronic stress and have fewer personal resources to cope with it.

The 15-year outcomes for the mothers in our sample appear in Table 2. The results are clear and quite significant. In contrast to women in the comparison group, the mothers visited by nurses during pregnancy and the first two years after delivery had fewer subsequent children. They spent less time on welfare, showed fewer behavioral impairments from the use of alcohol or drugs, and were less likely to be arrested. They were also less likely to abuse or mistreat their children, even though the frequent home visits to families increased the likelihood that any abuse would be identified. The most positive results were concentrated among unmarried mothers of low socioeconomic status, suggesting that such women are more likely to benefit from a nurse home-visiting program than are married women of somewhat higher socioeconomic status.

The Elmira program cost an average of $3,246 per family (in 1980 dollars) for 2.5 years of intervention. For poor families, the cost averaged $3,133. Researchers estimated the extent of government savings over the first four years at $1,772 for the sample as a whole and $3,498 for low-income families; 56 percent of the savings came from diminished use of AFDC, 26 percent from food stamps, 11 percent from Medicaid, 5 percent from increased taxes paid by working mothers, and 3 percent from lower involvement by child protective services. Thus the investment in the family, from the perspective of government spending alone, was recovered for families of low socioeconomic status before the children were four years old.[2] The experiment is also being evaluated as part of a comprehensive analysis of the financial costs and benefits of early childhood interventions that is now being conducted by researchers at RAND.[3] In addition to the direct family benefits, the RAND study will consider savings to government, in the form of taxes from increased employment and reduction in the cost of special services (such as special education or emergency room visits for children), welfare payments, and criminal justice costs. The analysis will also include benefits to society at large (for example, the reduction in tangible losses

to crime victims). Preliminary findings suggest that government savings for both mothers and children exceed costs by at least a factor of two or three.

The Memphis home visitation program

The long-term results of the Elmira program are encouraging indeed. But would it be possible to replicate this program in a major urban area with a minority population? To answer this question, we undertook to carry out a nurse home-visitation program with an African-American sample of primarily low-income, unmarried women living in Memphis, Tennessee. The program was administered through a public health department, not, as in Elmira, through a private agency.

From June 1990 through August 1991, the program enrolled 1,139 women from the obstetrical clinic at the Regional Medical Center in Memphis. Women were actively recruited if they were less than 29 weeks pregnant, had no previous live births, suffered no specific chronic illness that might contribute to retarded fetal growth or premature delivery, and met at least two of the following conditions: they were unmarried, had less than 12 years of education, and were unemployed. (See Table 1.)

As in Elmira, women in Memphis were randomly assigned to one of four groups. Group 1 (166 women) was provided free transportation to prenatal care appointments; they received no postpartum services or assessments. Group 2 (515 women) was provided transportation plus developmental screening and referral for the child at 6, 12, and 24 months of age. Group 3 (230 women) was offered the same services as group 2, plus intensive nurse home-visitation services during pregnancy and two postpartum visits, one at the hospital and one at home. Group 4 (228 women) was provided these services; in addition, nurses continued to visit through the child's second birthday. Nurses completed an average of seven home visits during pregnancy and 26 home visits during the first two years after the child's birth. As in Elmira, the nurses followed detailed protocols to guide their efforts to help women improve their health-related behaviors, education, employment, pregnancy planning, and physical and emotional care of their children. They helped family members make use of needed health and human services and sought to involve them in the pregnancy, and in the birth and early care of the child.

All the participating women were interviewed and tested to determine their socioeconomic status, intellectual functioning, personality characteristics and mental health, obstetric histories, and social service use. Further interviews and tests when the children were 6, 12, and 24 months old explored mothers' educational achievements and employment histories since the child's birth, and recorded the child's medical history, developmental behavior, and relations with the mother. At the two-year point, we were able to complete assessments for 96 percent of cases in which there had been no fetal or child death.

In our study of the prenatal period in Memphis, we found no major effects of enrollment in the program for such outcomes as birth weight, prematurity, or the baby's physical condition at birth.[4] We did find that by week 36 of the pregnancy, nurse-visited women (groups 3 and 4) were more likely to be making use of other community services and to be employed than were women in the comparison group (groups 1 and 2). The nurse-visited women also had twice as many predelivery hospitalizations as women in the comparison group, which we think is due to the heightened awareness of emerging health problems among women and health-care providers. Moreover, nurse-visited women have 23 percent fewer cases of pregnancy-induced hypertension, a group of hypertensive disorders common among pregnant African-American women.

The results after two years present a mixed picture. The program did not appear to increase children's use of well-child care, immunization status, mental development, or reported behavioral problems. But nurse-visited children were significantly less likely to need treatment for injuries or accidental ingestions than were children in the comparison group. Over the two years, only three children in the nurse-visited group were hospitalized, and all were over 12 months old and mobile: one was burned, one swallowed a coin, and one swallowed iron medication. Of the 14 hospitalizations among the comparison group, six involved children less than six months old. Six children had fractures or head injuries, and four were burned. The effects of home visits were greater for children born to women who had been identified as having few psychological resources—an assessment based upon measures of intelligence, mental health, and self-mastery or self-efficacy, which is, essentially, the ability to cope effectively with a wide range of challenges and stresses (a deficit in this sense of mastery is often associated with child abuse and neglect).

After two years, there was clear evidence of pregnancy planning among the mothers in the experimental group: 31 percent of mothers in the comparison group, but only 22 percent of the nurse-visited mothers, had a second child. Women who were assessed as having higher levels of emotional resources had even fewer children: the rates of second births were 14 percent for the nurse-visited group, 31 percent for the comparison group. There was some indication that nurse-visited women made slightly less use of AFDC, but the program at this point showed no effect upon the mothers' educational achievement or employment.

Differences emerged in parenting styles and quality, however. The nurse-visited women more frequently attempted to breast feed their infants. And when asked

about child-rearing and child development, they were less likely to exhibit attitudes associated with child abuse and neglect, such as lack of empathy, unrealistic expectations for infants, and belief in physical punishment. Their homes were judged as more conducive to child development (using the HOME scale).[5] Among mothers with low psychological resources, nurse-visited children were more communicative and responsive than those in the comparison group.

Elmira and Memphis compared

Comparisons between the prenatal outcomes for the two programs are not simple. Contextual differences help to explain some differences.[6] In Elmira, women who were participating in the program and who smoked, for example, had 75 percent fewer preterm deliveries than did smokers in the control group. Nurse-visited adolescents delivered babies with higher birth weights. The African-American women in Memphis smoked substantially less, however, than did their Caucasian counterparts in Memphis or Elmira, reducing the opportunity for the program to produce positive prenatal results through reductions in mothers' cigarette smoking during pregnancy.

Findings from the postnatal stage of the Memphis project, as they have so far been analyzed, are more consistent with the Elmira study and are encouraging. By the end of the program, for instance, there were significant effects upon women's sense of mastery or self-efficacy. Many of the effects that are described above were greater for mothers with low psychological resources.

It is too soon, however, to tell whether the results for Memphis will follow the same trajectory as those for Elmira. The 15-year Elmira follow-up found that early, sometimes small alterations in maternal life course portended substantial improvements in women's later outcomes. In Elmira, for instance, effects on workforce participation did not emerge until after the two-year program ended, and its positive effect on promoting women's economic self-sufficiency was preceded by a reduction in the rate of subsequent pregnancy. It will be important to determine whether a corresponding pattern emerges in Memphis.

Elmira and Memphis are model experiments in which the programs were conducted with high fidelity to an underlying theoretical and clinical model. The next challenge is to determine the extent to which the program can be faithfully replicated in other communities, and what community and organizational factors contribute to its replication.[7] ■

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[1]D. L. Olds, J. Eckenrode, C. R. Henderson, Jr., and others, "Long-Term Effects of Home Visitation on Maternal Life Course and Child Abuse and Neglect: 15-Year Follow-Up of a Randomized Trial," and H. Kitzman, D. L. Olds, C. R. Henderson, Jr., and others, "Randomized Trial of Prenatal and Infancy Home Visitation by Nurses on Pregnancy Outcomes, Childhood Injuries, and Repeated Childbearing." Both in *Journal of the American Medical Association* 278, no. 8 (Aug. 27, 1997): 637–43, 644–52.

[2]The year 1980 was chosen as the midpoint of the program (1978–82). See D. Olds, C. Henderson, C. Phelps, and others, "Effects of Prenatal and Infancy Nurse Home Visitation on Government Spending," *Medical Care* 31, no. 2 (1993): 155–74. It would take longer for such an investment to be recovered today, because the costs for such a program have increased more rapidly than the cost of welfare benefits.

[3]Preliminary results are available in L. A. Karoly, P. W. Greenwood, S. S. Everingham, and others, "Benefits and Costs of Early Childhood Interventions: A Documented Briefing," RAND, Santa Monica, CA.

[4]Physical condition was determined by the baby's APGAR score, which measures Appearance (color), Pulse, Grimace, Activity, and Respiration in the minutes after birth.

[5]Toddlers' behavior is considered a better indication of the quality of the parent-child relationship over time than are the currently observed behaviors of parents. The Home Observation for Measurement of the Environment (HOME) scale assesses the educational and socioemotional properties of the home and is widely used in studies of child development.

[6]Women in the Memphis study exhibited different types of risks than did those in Elmira. For example, only 9 percent of the participants in Memphis smoked one or more cigarettes a day at registration, but 55 percent of Elmira mothers did (so, indeed, did over half the few Caucasians in the Memphis study). But rates of sexually transmitted diseases were much higher among the Memphis mothers than in Elmira (47 percent versus 16 percent). The prenatal results for Memphis are reported in Kitzman and others, "Randomized Trial." The Elmira results for the prenatal period are reported elsewhere; see, for instance, D. L. Olds, C. Henderson, R. Tatelbaum, and others, "Improving the Delivery of Prenatal Care and Outcomes of Pregnancy: A Randomized Trial of Nurse Home Visitation," *Pediatrics* 78 (1986): 65–78.

[7]Two well-designed trials of other such programs currently under way should give a better understanding of the range of program characteristics that can affect maternal, child, and family functioning. These are the San Diego Healthy Families America clinical trial being conducted by J. Landsverk and T. Carrilio at the San Diego Children's Hospital and Health Care Center, and Hawaii's Healthy Start Home Visiting Program (report presented by A. K. Duggan, S. B. Buchbinder, L. Y. Fuddy, and others at the annual meeting of the Ambulatory Pediatric Association, Washington, D.C., May 6–9, 1996). The Elmira and Memphis programs, and the two programs described in this note, took place in the context of the health care delivery system. An evaluation of the efficacy of home visitation within the context of the welfare system is currently being directed by Rebecca Maynard, Professor in the Graduate School of Education at the University of Pennsylvania.

Children with disabilities and the SSI program

In 1996, over $5 billion was paid in Supplemental Security Income (SSI) benefits to poor children with disabilities, double the amount paid five years before. Prompted by this very substantial increase, Congress incorporated more restrictive definitions of disability in the Personal Responsibility and Work Opportunity Reconciliation Act passed in August of the same year. As a consequence, Urban Institute researcher Pamela Loprest estimates, about 26 percent of the 1 million children who receive SSI will have their status reviewed; 135,000 of them are likely to lose SSI benefits.[1]

These major changes in law and policy have occurred in an informational vacuum. The National Commission on Childhood Disability commented, in a 1995 report, "Large gaps exist in the current understanding of childhood disability. These gaps severely impeded the Commission's deliberations and, until addressed, will continue to serve as a barrier to policy making."[2] The first item in the Commission's four-point research agenda makes it clear how substantial our ignorance is:

> Who are children with disabilities in terms of their clinical, functional, and family status; their status over time; their relationship to the broader population of children without disabilities; and their relationship to the narrower population of children with disabilities who receive SSI?

The Commission's report provides some general answers to these questions. In 1995, 33 percent of children receiving SSI were physically disabled, suffering from nervous system disorders, congenital anomalies such as spina bifida, respiratory diseases such as asthma, and deafness or blindness, among the more common impairments. Nearly 67 percent were eligible for benefits because of mental impairments. About two-thirds of these were mentally retarded, and the remainder were eligible because of psychotic and neurotic disorders—about one-third of them diagnosed with Attention Deficit Hyperactivity Disorder (ADHD).[3] (See Figure 1.)

The research described in the following articles brings further evidence to bear on two questions brought into high relief by the new laws. Marcia Meyers, Anna Lukemeyer, and Timothy Smeeding analyze the prevalence of disability and chronic illness among children in poor families, the private and public costs of their care, and the economic consequences for families. S. Jody Heymann and her colleagues examine some work-related issues for low-wage workers who must care for chronically ill children. ■

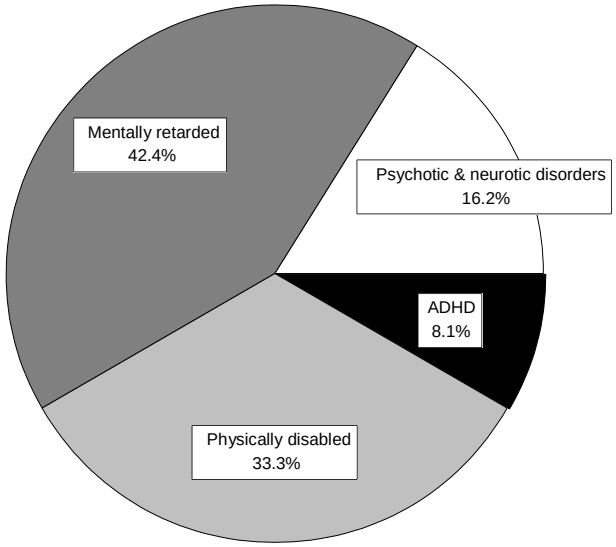

Figure 1. Children with disabilities receiving SSI.

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[1]P. J. Loprest, *Supplemental Security Income for Children with Disabilities: Part of the Federal Safety Net*, Assessing the New Federalism, No. A-10, Urban Institute, Washington, D.C., July 1997.

[2]The commission was established by Congress in 1994. See National Commission on Childhood Disability, *Supplemental Security Income for Children with Disabilities*, Report to Congress, Washington, D.C., October 1995, p. 109. The three other items in the Commission's agenda, not discussed here, are: (2) What interventions are helpful (and harmful) in improving outcomes for children with disabilities and their families? What outcomes are achievable for children with disabilities? (3) Does the form in which support is provided (cash, direct services, or vouchers) influence outcomes for children with disabilities and their families, and if so, how? (4) What outcomes should public support for children with disabilities aim to achieve?

[3]It is these emotional and psychosocial grounds for eligibility that have attracted the greatest amounts of unfavorable attention, including complaints that children have been "coached" to exhibit appropriate symptoms and that there has been great inconsistency in determining eligibility among the states. In 1994, 28,500 of the children receiving SSI for this reason had qualified because they met or equaled the Social Security Administration's criteria for functional impairments; 35,000 had qualified through an Individual Functional Assessment (IFA), which was created by the SSA in response to a 1990 Supreme Court decision, *Sullivan v. Zebley*. Children who did not have impairments that met or equaled the SSA criteria might qualify through an IFA, which reviewed age-appropriate functioning to determine a child's degree of disability. The Personal Responsibility Act of 1996 eliminated the IFA. Children who are receiving SSI on the basis of an IFA are the primary group whose eligibility will come under review. (Loprest, *Supplemental Security Income*; National Commission, *Supplemental Security Income*, pp. 9–13, 23.)

The cost of caring: Childhood disability and poor families

Marcia K. Meyers, Anna Lukemeyer, and Timothy M. Smeeding

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Children's disabilities and chronic illnesses impose substantial costs on families and public services.[1] Private costs to a family are both subjective—grief, anxiety, and social isolation—and financial. Direct financial costs include medical care, medications, rehabilitative services, and assistive devices. Indirect financial costs result from reduced employment because of the extent and intensity of caregiving services. The best studies for measuring costs are now 15 years old. And estimates of costs have often failed to capture the extent of the extra burdens upon low-income families, omitting, for example, direct costs for transportation and special food, or indirect costs such as lost time for household work. But even from these incomplete estimates, it is clear that families whose children are chronically ill or disabled face multiple difficulties that may seriously disrupt family life and constrain income.

Children in low-income families are also more likely to be chronically ill or disabled. Many causes may be at work here—environmental risks in poor neighborhoods, the higher incidence of low-birth-weight babies, and deficiencies in housing, nutrition, and health care. The presence of a child with a disability exposes any family to a greater risk of economic hardship. In poor families, the direct and indirect costs of caregiving exact a much higher toll: more extreme choices between employment and caregiving, more devastating financial consequences. Especially for poor, single-parent families, the presence of a chronically ill child may remove any opportunity to earn their way out of poverty.

The public costs of childhood disability include means-tested programs specifically for disabled individuals, such as Supplemental Security Income (SSI), and also programs that are not so targeted—Medicaid, food stamps, and cash assistance programs such as the former Aid to Families with Dependent Children (AFDC). The total cost of governmental services for children with exceptional needs in 1993 is estimated to have been $44.3 billion—about $10.6 billion in federal costs, $33.7 billion in state and local costs.[2] Yet the impact of children's disabilities on the probability and duration of welfare receipt has been little studied. There are few estimates of the number of low-income families caring for disabled and seriously ill children, of the impact on family well-being, or of the role of income assistance programs in offsetting the extra costs associated with the care of such children.

In our research, we have begun to address these many gaps in our knowledge.[3] We asked: What is the prevalence of disabilities and chronic health problems among children in welfare-recipient households? How do families' caregiving responsibilities differ, in terms of the number of children affected and the severity of their condition? What costs do these families face, how are they distributed, and how do they affect economic well-being? What is the role of public assistance programs?

The California AFDC Household Survey. Our data come from a two-wave telephone survey of 2,214 randomly selected English- and Spanish-speaking households in four counties, Los Angeles, Alameda, San Joaquin, and San Bernardino, representing over half of the state's welfare caseload. As a cross-sectional sample of the welfare population at a point in time, these data overrepresent long-term, more highly disadvantaged welfare recipients relative to the somewhat more advantaged families who cycle through the system more quickly. They also omit some important groups, notably recent immigrants. Because all families in the sample were poor enough to qualify for AFDC, they are an especially disadvantaged subset of all families who care for children with special needs. They are also very likely to be affected by the 1996 changes in welfare policy and the SSI program.

In both Wave 1 (1993) and Wave II (1995), the adult female caretaker for AFDC children was asked detailed questions about family and household composition, parents' labor market activities, household income, and use of social services. The Wave II survey questions identified families with chronically ill or disabled children, assessing the type and severity of the impairment, costs associated with caring for the child, and the impact on parents' labor market participation. We analyzed data from the 1,696 families who were reached in Wave II and who had children under 18 living with them—a total of 3,759 children.

The prevalence of disability among poor children

We used mothers' reports to distinguish among "mild," "moderate," and "severe" disability. Children were classified as moderately disabled if they needed "a little" more help than others of their age in daily activities, were unable to take part in usual activities for a child of that age, attended special classes or received special education services because of their condition, missed "some" days of school, or had limitations in their physical mobility. Severely disabled children needed "a lot" more help than others of their age in daily activities, missed "a lot" of school days or were prevented from attending school at all because of their condition, or received SSI. Children who were identified by the screening questions as having special needs, but who met none of the conditions for moderate or severe disability, were classified as mildly disabled.

Childhood disabilities are considerably more prevalent among the welfare recipients in the California AFDC sample than in the general population. From the mothers' reports, about 12 percent of all children had some form of disability or chronic illness, and the prevalence increased with age, from 6 percent of children under age 3 to 13–14 percent of children aged 6–17. Severe disability was much less frequent, though still high: 3 percent among infants and toddlers, 5–6 percent among school-aged children.

Nearly one-fifth (19 percent) of all families were caring for at least one child with a disability or illness. Over 11 percent had an especially heavy care burden because they cared for more than one mildly or moderately affected child (2.6 percent), a severely affected child (6.2 percent), or more than one special needs child, at least one of whom had a severe problem (2.4 percent).

This is not the end of the story. When adult disabilities and children's special needs are considered together, 38 percent of households were affected: the 12 percent with an ill or disabled child, 18 percent headed by a disabled mother, and 8 percent with both a disabled caretaker and a special needs child.

Private costs of care

Among families with any special needs children, about half incurred out-of-pocket expenses for services or necessities in the month preceding the survey. The probability of incurring costs, and their magnitude, varied greatly. For 12 percent of those with expenses, the amount was relatively small, $25 or less. But almost 43 percent of those with out-of-pocket expenses (about 20 percent of all families with a special needs child) spent over $100. Unreimbursed medical expenses, although the most common type of direct cost, were quite moderate for most families; child care, special food, and special clothing, also commonly incurred expenses, were more burdensome. For over a third of families with out-of-pocket costs, expenses exceeded 10 percent of the family's total monthly income, and for almost 8 percent of families, they exceeded 25 percent of income.

As the number and severity of children's needs increased, so did the probability of high expenses. Indeed, the severity of the child's condition proved to be the only consistent predictor of costs. Although the cost of caring for children with different types and severity of condition is likely to be uneven over time, the probability that families would incur any cost was surprisingly even across conditions. Families with children who had mental disabilities had somewhat higher expenses than those whose children had physical conditions, but the differences were not consistent. The disease categories that have come under the closest scrutiny in the public debate over SSI—behavioral disorders, learning disorders, and speech impairments—were associated with some of the highest out-of-pocket costs.[4]

Families with special needs children also incurred indirect financial costs in the form of reduced employment and, as caregiving responsibilities increased, so also did the family's indirect costs. At the time of the survey, over 60 percent of mothers with a single, mildly to moderately disabled child were unemployed—about the same percentage as mothers with no disabled children. But among those with one or more severely disabled children, the proportion was significantly higher (79–83 percent). And the number of mothers reporting barriers to work rose dramatically with the number and severity of children's special needs, constituting 65 percent of those with a single severely disabled child and 90 percent of those with multiple and severely disabled children.

These direct and indirect costs took a substantial toll on families' economic well-being. Before adjusting for special expenses, families with special needs children tended to be somewhat better off than families without such children—largely because about one-quarter of special needs children qualified for SSI benefits. With earnings and benefits included in income, fewer lived in poverty (58 versus 69 percent), and only 26 percent had incomes at or below 75 percent of poverty (compared to 36 percent of those without such children). But when incomes were adjusted to account for out-of-pocket expenses, the fraction of families with special needs children who were living below the poverty line increased from 58 to 62 percent, and the number who were very poor increased to more than one-third (36 percent). Out-of-pocket expenses for families with more than one special needs child raised the percentage in deep poverty from 35 to 53 percent. This is especially troubling in view of the deleterious effects of deep poverty even on children who are not disabled or chronically ill.[5]

Table 1
California AFDC Families with Special Needs Children: Economic Well-Being and Material Hardship, 1992

Family Circumstances	Families, by Number and Severity of Children's Conditions: No Children with Disabilities	Mildly to Moderately Affected: One Child	Mildly to Moderately Affected: More than One Child	One Severely Affected Child	More than One Child, One Severely Affected
Economic Well-Being					
Family income (mo., adjusted, per individual)	$652.90	$665.50	$515.30	$699.40	$738.10
Poverty level[a]					
All income + food stamps	104.2	106.7	78.4	111.5	114.8
Adjusted (all income + food stamps - special expenses)	104.2	103.5	75.4	105.3	105.5
Adjusted, families with no SSI for any child	104.2	103.5	75.4	79.7	71.8
		% of Households in Survey			
Material Hardship					
Child(ren) ever hungry	17.0	30.9	34.9	34.9	38.1
Adults ever hungry	21.7	33.6	41.9	34.9	57.1
Late with rent/mortgage 3 or more times	18.3	18.2	25.6	17.9	31.7
Evicted or homeless in prior year	6.9	13.4	11.6	6.7	23.8
Utility or phone shutoff in prior year[b]	30.4	25.7	48.8	33.6	46.3

Source: California AFDC Household Survey, Wave II. *N* = 1,696 households (weighted).

[a]As percentage of the poverty line; mean status of families in each category.

[b]Includes those who never had a phone because they could not afford it.

Families with special needs children were also consistently more disadvantaged on direct measures of hardship: child hunger, adult hunger, evictions, periods of homelessness, and phone or utility shutoffs because they could not pay the bills (see Table 1). There was about a 50 percent probability that families who reported no disabled or chronically ill children had experienced one or more of these forms of hardship in the previous year. If a family cared for at least one severely disabled child and did not receive SSI, however, its chances of material hardship increased to over 70 percent. SSI appeared to make a substantial contribution to economic well-being: families caring for a child with the same level of impairment, but receiving SSI, had about the same probability of hardship (51 percent) as families with healthy children.

The public costs of care

The probability that families received services from programs for children with disabilities or from nontargeted public assistance increased significantly as caregiving responsibilities rose (see Table 2). One would expect to find this pattern in programs for children with special needs, but it is more surprising to find it also in means-tested programs that do not specifically address the disabled population. For example, the percentage of families with housing subsidies varied from a low of 19 percent among those with no special needs children to 39 percent among those with multiple and severely disabled children.

In view of the changes in SSI eligibility rules (see p. 51), the significant role of the program in providing income for families with special needs children deserves particular attention. In the California sample, fewer than one-quarter of all disabled or ill children, and about one-half of those with a severe condition, were receiving SSI. But the relatively better economic status of families with special needs children is almost entirely due to participation in SSI. For example, when we distinguished families with severely disabled children according to their SSI status, 32 percent of those with SSI were at or below the poverty line and only 11 percent lived in deep poverty. Families with a severely disabled child and no SSI benefits were the most disadvantaged of all. Fully three-quarters of them lived at or below the poverty line. After accounting for out-of-pocket expenses, 57 percent lived in deep poverty.

We cannot easily disentangle poverty and disabilities in this sample of AFDC families. For some, poverty may have contributed to the occurrence or severity of their children's illness or disabilities. For others, the special needs of the child—extra caretaking, medicine, and services—may have contributed to the family's poverty and material hardships. For families with many problems, a constellation of functional difficulties and human capital deficits increases the risk of poverty, poor health outcomes, and long-term reliance on welfare. Whatever the reasons, these families face high costs in caring for their children and may have more limited options for employment. Their disabled and chronically ill children may be especially vulnerable to compromises in housing, nutrition, health care, and other living conditions.

Table 2
California AFDC Families with Special Needs Children: Participation in Public Programs, 1992

Program	Families, by Number and Severity of Children's Conditions (% of households)				
		Mildly or Moderately Affected			
	No Children with Disabilities	One Child	More than One Child	One Severely Affected Child	More than One Child, One Severely Affected
Any Child in Special Services					
Special education or early intervention	n/a	38.9	55.8	50.5	82.9
Calif. Children's Services	n/a	4.7	2.3	11.2	19.5
Community mental health services	n/a	6.7	6.8	9.4	21.4
Means-Tested Cash Income Program					
AFDC	73.7	79.2	84.1	86.8	97.6
SSI	7.8	8.7	9.3	61.3	63.4
Either AFDC or SSI	75.9	79.2	84.1	92.5	100.0
Means-Tested In-Kind Income Program					
Food stamps	72.1	72.5	77.3	82.1	90.5
Subsidized housing	19.3	23.3	27.5	33.3	38.5
Medicaid/Medicare[a]					
Child	77.6	80.4	86.4	89.6	100.0
Mother	68.9	72.5	63.6	89.6	85.7

Source: California AFDC Household Survey, Wave II. *N* = 1,696 households (weighted).

[a]Medicaid status for one randomly selected child in family, not necessarily the disabled child.

The exceptional needs and heightened vulnerability of these children may warrant extra cash assistance provided through programs such as SSI. And the special caregiving burden on parents may necessitate specialized supportive services and justify a more careful evaluation of the importance, to children and to society, of care provided by mothers to children in their homes. ■

[1]Researchers typically define *chronic* conditions as those that have lasted or are expected to last at least three months; in the general population, as many as 30 percent of children may have a chronic health condition. But only a fraction of these conditions result in significant physical, mental, or psychosocial impairments. The extent to which conditions are *disabling* is typically measured in terms of functional limitations (e.g., restrictions in daily activities), developmental abnormalities (e.g., educational delays), or the level of pain and discomfort that the child experiences. Approximately 6 percent of children under age 18 have a limitation due to a chronic health condition or impairment, and between 0.5 and 3 percent of children have a severely disabling condition.

[2]L. Y. Aron, P. J. Loprest, and C. E. Steuerle, *Serving Children with Disabilities: A Systematic Look at Programs*. Urban Institute, Washington, D.C., 1996.

[3]Extended discussions of the issues raised in this article appear in two papers from the Income Security Policy series of the Center for Policy Research at Syracuse University: M. K. Meyers, A. Lukemeyer, and T. M. Smeeding, "The Cost of Caring: Childhood Disability and Poor Families" (no. 16, July 1997), and A. Lukemeyer, M. K. Meyers, and T. M. Smeeding, "Expensive Children in Poor Families: Out-of-Pocket Expenditures for the Care of Disabled and Chronically Ill Children and Welfare Reform" (no. 17, August 1997).

[4]Costs for child care, special food, and special clothing in the month before the survey averaged $119, $83, and $83, respectively. Mean costs for children with physical disorders were $96.92 (*N* = 244), for those with mental disorders $146.10 (*N* = 88).

[5]See G. J. Duncan and J. Brooks-Gunn, eds., *Consequences of Growing Up Poor* (New York: Russell Sage Foundation, 1997).

Access to IRP information via computer: the World Wide Web site

IRP has a World Wide Web site that offers easy access to Institute publications. The Institute site includes publications indexes (updated quarterly), information on IRP publications, and ordering information. It provides basic information about the Institute's staff, research interests, and activities such as working groups, conferences, workshops, and seminars. The Web site also includes an annotated list of affiliates, with their particular areas of expertise. It offers an extensive set of links to poverty-related sites and data elsewhere.

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IRP's home page on the Web can be found at: **http://www.ssc.wisc.edu/irp/**

Working conditions faced by poor families and the care of children

S. Jody Heymann and Alison Earle

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Parents who are working in the labor force must find ways to meet the many unpredictable time demands of children. Parents must care for sick children who are unable to go to child care or school, meet with child care providers and teachers when children are having difficulties, arrange for special services when children have learning disabilities or behavioral problems, and cope with unexpected failures in child care or other emergencies.

For some workers, paid sick leave, vacation leave, and personal days can be taken to care for children. Parents who work in jobs that have flexible schedules or where they have autonomy over where and when they get the work done are more likely to be able to take leave to care for their children when necessary. But conditions of employment such as sick leave, vacations, and flexibility vary greatly among jobs. What sick leave and vacation benefits are available to low-wage parents who seek to balance working and caring for their children? What flexibility do they encounter in the work place? If the demands of the job and children's needs conflict, can they draw upon family and friends to help meet their multiple roles?[1]

Our data are drawn from two sources: the National Medical Expenditure Survey (NMES) and the National Longitudinal Survey of Youth (NLSY). Using the NMES, we compare the experience of low-income working parents with that of middle- and higher-income parents. Using the NLSY, we examine the experience of past welfare recipients. We examine the conditions of working parents who are employed 20 or more hours per week and who are not self-employed.

The care of sick children

Caring for sick children provides an important example of the needs working parents must meet.

How great are the demands made on working parents by the need to care for sick children? From the NMES, we estimated the "family illness burden," the number of sick days of all children in a family, that would require sick leave. Sick days included days when activity was limited, days spent in bed, and, among children 5–17 years old, days at school missed because of illness. More than one in three families faced a family illness burden of two weeks or more each year. For one family in four, it was three weeks.

Working conditions

Between 1985 and 1990, 28 percent of mothers had no sick leave the entire time they worked.[2] Many mothers had paid sick leave for only part of the time they were employed. Employed mothers of children with chronic conditions had less sick leave than other employed mothers. Nearly 40 percent of mothers whose children had asthma and 36 percent of mothers whose children had other chronic conditions were without sick leave the entire time they worked.

In 80 percent of two-parent working families, one parent had paid sick leave, but only 55 percent of single parents had paid sick leave. This was in part because they were more likely to be poor, nonwhite, and in low-wage jobs. Thirty-eight percent of poor parents and 31 percent of nonwhite parents had no sick leave, compared to 20 percent of white parents.

Existing federal policy

The Family and Medical Leave Act (FMLA) of 1993 requires that employers provide up to 12 weeks of unpaid leave if the employee or a member of the immediate family has a major illness. Although the FMLA was an important start, it has many gaps. First, the FMLA applies only to employees who work for firms that employ 50 or more people, and who have worked for at least 12 months and 1,250 hours for their present employer. This requirement excludes the 43 percent of people in the private sector who work for firms with less than 50 people; it also excludes people who hold a succession of unstable jobs or work part time.[3]

Second, by limiting medical leave to the care of major illnesses, particularly those involving hospitalization, the FMLA does not address most children's sick care needs. Few children have lengthy hospitalizations, but many have frequent minor illnesses that require absence from school or day care. This is particularly an issue for children with chronic conditions such as asthma.

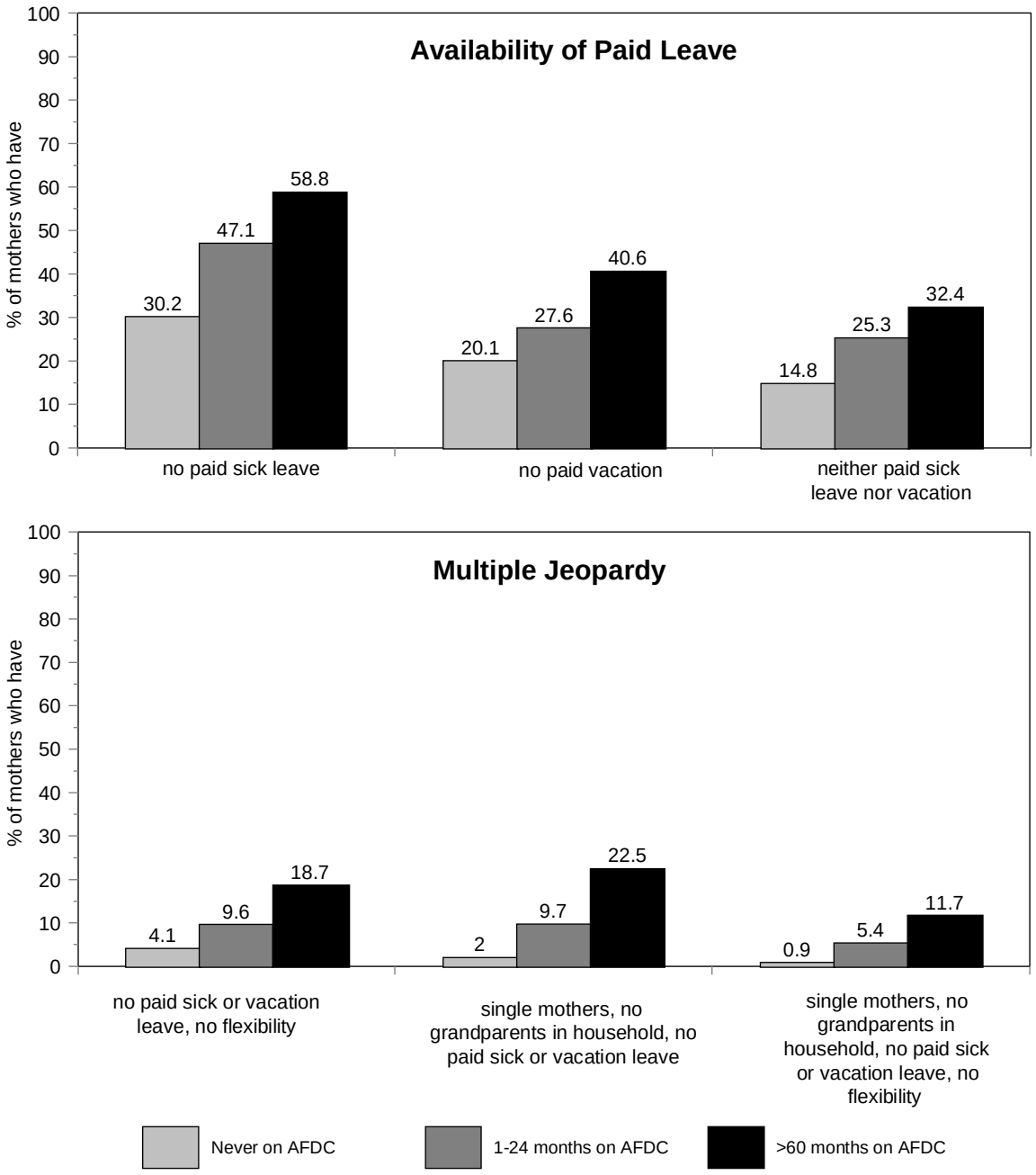

Figure 1. Leave and job conditions for poor working parents. Source: Adapted from S. J. Heymann and A. Earle, "Working Conditions: What Do Parents Leaving Welfare and Low Income Parents Face?" Working Paper H-97-01 of the Malcolm Weiner Center for Social Policy in the John F. Kennedy School of Government, Harvard University, June 1997.

Third, even if parents are covered under the FMLA, they may find that a period of extended unpaid leave is financially infeasible.

When parents cannot stay home to care for sick children because they have no sick leave, and sick child care is unavailable or unaffordable, children may be left alone, or sent to school or day care sick. The cost to children is high: children left at home alone may be unable to get help if their conditions worsen. Furthermore, there is strong evidence that children have shorter recovery times if their parents share in their care. The social cost is also high; the higher rates of infections observed in day care centers when children are sent there sick provide one example.

Working conditions of parents who have left welfare

Although many low-wage workers face high barriers to balancing work and family, the hurdles faced by long-term AFDC recipients may be particularly problematic. Working mothers who had received AFDC in the past were significantly more likely than working mothers who had never received welfare to be in jobs that had no paid

vacation leave and no paid sick leave (Figure 1, panel 1). When they did have such leave, they had significantly less leave, on average, than did mothers who had never been on welfare.

Paid leave and flexible schedules can be used as partial substitutes for each other in meeting children's needs. Mothers who had left welfare were at double jeopardy: they were significantly more likely to lack paid leave and flexibility at work. Women who had received welfare for more than five years were four times as likely to be at double jeopardy as mothers who had never received welfare.

Parents with few benefits and little flexibility in the workplace may rely on other adults in the household or the neighborhood to help meet children's needs while they are working. Once again, mothers with a history of welfare receipt were at far greater risk. They were significantly more likely than mothers who had never been on welfare to be single, to have no grandparents in the household, and to be employed in jobs with no paid vacation or sick leave and no flexibility in their work schedules. Such families face multiple jeopardy (Figure 1, panel 2). One in five mothers who had spent over five years on welfare was in this position, compared to one in 50 mothers who had never received welfare.

In these studies, we examined the working conditions of mothers who have returned voluntarily from welfare to work. They are a self-selected group that on average is better educated and has more work experience than mothers who have not left welfare. They have been in a better position to compete for jobs and benefits than those who will be required to leave welfare for work under the new federal and state welfare legislation. The working conditions faced by the lower-skilled mothers who leave welfare under the new mandates are likely to be worse. ■

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[1]This article draws upon the following papers: S. J. Heymann and A. Earle "The Work-Family Balance: What Hurdles Are Parents Leaving Welfare Likely to Confront?" (forthcoming in the *Journal of Policy Analysis and Management*), published by John Wiley & Sons; S. J. Heymann and A. Earle, "Working Conditions: What Do Parents Leaving Welfare and Low-Income Parents Face?" Working Paper H-97-01 of the Malcolm Wiener Center for Social Policy in the John F. Kennedy School of Government; S. J. Heymann, A. Earle, and B. Egleston, "Parental Availability for the Care of Sick Children," *Pediatrics* 98 no. 2 (August 1996): 226–30 and S. J. Heymann, "Labor Policy: Its Influence on Women's Reproductive Lives," in *Power and Decision: The Social Control of Reproduction,* ed. G. Sen and R. C. Snow (Cambridge, MA: Harvard Center for Population and Development Studies, 1994), pp. 43–57.

[2]We think it equally important to examine fathers' sick leave, and include them in analyses of sick care needs using the NMES. They are not included in the NLSY analyses because the NLSY does not provide data on fathers that can be linked to their children.

[3]Former welfare recipients are particularly likely to fall into the latter category. The employment patterns of former AFDC recipients are described in articles in *Focus* 17, no. 2 (Fall/Winter 1995): 1–15.

Northwestern University/University of Chicago Joint Center for Poverty Research Small Grants Program

The Northwestern University/University of Chicago Joint Center for Poverty Research announces its Small Grants program for researchers who study the causes and consequences of poverty, and the effects of programs designed to reduce poverty. Untenured or junior scholars are particularly encouraged to apply.

Areas of specific interest, although awards are not limited to these topics, include research related to the changing labor market, the well-being of families and children, understanding concentrated urban poverty, and the effects of recent policy changes, particularly on special populations such as (but not limited to) immigrants, low-skilled workers, persons with disabilities, and persons with substance abuse problems.

This small grant program is supported through the core sponsor, the Office of the Assistant Secretary for Planning and Evaluation (ASPE) of the U.S. Department of Health and Human Services along with sponsorship through the U.S. Bureau of the Census. The Census component will support research using the Survey of Income and Program Participation.

The maximum award will be $20,000. Applications are due by February 13, 1998. For application information, contact Kara Foehrkolb, Project Assistant, The Joint Center for Poverty Research, Harris School of Public Policy, University of Chicago, 1155 E. 60th Street, Chicago IL 60637. Phone (773) 834-1286; Fax (773) 702-0926; e-mail <karaf@cicero.spc.uchicago.edu>.

Assessing the long-term effects of foster care: An elusive mission

> The most important questions to be asked about out-of-home care concern its long-term impact on the children who are part of it. Is a child's ability to function as an adult impaired or enhanced as a result of the time spent in out-of-home care?
>
> *Assessing the Long-Term Effects of Foster Care,* p. 5.

Perhaps the most drastic intervention that can be made in the life of a child is to remove that child from its biological family and place it in the care of another family, especially one that is not the child's kin. In 1993, 445,000 children in the nation were in out-of-home care. The numbers of children entering the system have been growing steadily, and the children have been growing younger. A particularly disturbing trend has been the number of infants entering foster care. In the states being studied by the Multistate Foster Care Data Archive, almost one-quarter of all foster children who entered care between 1990 and 1992 did so before their first birthday.[1]

There has been very little agreement on the ultimate goals of out-of-home care. Tension has always existed between "child saving" and "family preservation," and the emphasis has sometimes shifted dramatically between the two. The Adoption Assistance and Child Welfare Act of 1980 (P.L. 96–272) came down decisively in favor of preserving families or of ensuring that children moved quickly from out-of-home care to permanent adoptive families. Out-of-home care was viewed as the least desirable alternative—perhaps a consequence of the failure to achieve permanent placement. As the caseload has grown and the controversy over ends has continued, it has become particularly critical to determine what we really know about out-of-home care and its long-term effects on the children served. It is frequently claimed, for example, that most of the long-term effects of foster care are negative: that former foster-care children are disproportionately represented among the homeless, the unemployed, the welfare-dependent, and the delinquent. But there are gaping holes in our knowledge of the circumstances and outcomes of children in foster care—in part, as is noted below, because of the absence of well-designed and commensurably oriented studies.

Studies of long-term outcomes for youth

In an effort to summarize what is known about the outcomes of foster care and to chart a course for future research and policy, researchers associated with the Institute for Research on Poverty undertook a critical review and synthesis of the existing evidence.[2] They identified 29 studies conducted since 1960 that reported on children formerly in care who were in their late teens or early adulthood at the time they were studied.[3] The studies varied greatly in quality and generally lacked comparative data, thus making it difficult to draw conclusions and integrate findings. This said, the IRP reviewers report interesting and in some cases unexpected conclusions about the long-term effects of out-of-home care, the comparative outcomes of family foster care and institutional placement and, where possible, the outcomes for children in long-term care relative to those who were either returned to their biological families or adopted.

Ultimately, the authors note, out-of-home care must be judged by whether it offers children a valuable service, or makes a bad situation worse: "What society asks of families, including foster families, is that they produce adults who are willing and able to live stable, relatively independent, reasonably happy lives and who can make a contribution to society."[4] Thus their discussion is structured around four categories of functioning: adult self-sufficiency, behavioral adjustment, family and social support systems, and sense of well-being.

A few salient findings in these areas follow, with some ranges of effects reported in the original studies.

Adult self-sufficiency depends to a large extent upon employment, which is at least in part a function of education. Between 15 and 56 percent of those placed in out-of-home care as children did not complete high school or earn a GED. Adoptees were more likely to finish high school than those in group residences, and they in turn were more likely to finish high school than those in family foster care. Despite the rather low level of educational achievement, unemployment rates among those formerly in out-of-home care did not differ from rates for the general population.

Failures in *behavioral adjustment* include crime and substance abuse. Males who were formerly in placement appear to engage in crime more often than similarly aged males in the general population (22–33 percent were convicted of crimes). Alcohol and drug use appear to be higher than in the general population, though the evidence is mixed.

The ability to form and maintain relations with *families and other social supports* provides a strong measure of individual functioning. Marriage/cohabitation rates for those formerly in care were substantially lower than

those for the general population and for individuals who had not been separated from their parents. Women who had been in out-of-home care as children were more likely to have been pregnant, to have been pregnant at an earlier age, and to exhibit serious failures in parenting than those who had not. Men who had been in care as children were less likely to have children of their own than women formerly in care were, and less likely to be living with them. Parenting difficulties were much less frequent among adoptees.

A large majority of those formerly in care remained in contact with members of their biological families: about one-half reported current contact with mothers, one-third with fathers, and about 90 percent with at least one sibling. About half also had contacts with former foster families and with staff at group residences.

Studies of personal well-being provided mixed evidence. Some found that adults in out-of-home care as children had poorer physical health than the general population, even when income was taken into account. Mental health was widely studied among the 29 investigations that were reviewed, but because the measures used in these studies varied drastically, the authors commented that it was difficult to offer any conclusion beyond the general statement that many adults formerly in foster care acknowledged suffering emotional problems.

What differentiates out-of-home care for those who experience it? The research findings here were even more variable than they were for adult outcomes. Type and number of placements (e.g., whether family, group, or institutional care), reason for admission, age at placement and at discharge, and time in care have all been considered important determinants of children's outcomes from foster care. Most of the findings, as the authors note, were consistent with the practice and policy of preferring foster family placement over group or institutional care and stressing the need for stable placements. Other findings contradicted the popular view that long-term foster care is harmful for the child, suggesting, in contrast, that a stable, long-term placement in a family foster home where the child is able to develop a strong identification with the foster family can benefit that child as an adult.

These studies, the authors conclude, offer convincing evidence that children in care are at high risk of "rotten" outcomes as adults—not simply slightly diminished functioning or failure to reach full potential, but failure to meet minimum levels of self-sufficiency. Although (as they point out) it is customary for research reviews to end with a call for more research, the existence of only 29 studies covering over 30 years is a meager body of information, given the length of time that out-of-home care has been used and the high emotional and financial costs it imposes.[5]

The Wisconsin Study of Youth Aging Out of Out-of-Home Care

To fill some of the lacunae in our knowledge of the outcomes of foster care, IRP affiliates Irving Piliavin and Mark Courtney are now conducting a study of young people who are "aging out" of foster care in Wisconsin. At age 18 in most states, children leave the care of child welfare services and are expected to make the transition to a self-sufficient adult life. How, and how well, do they accomplish this, and what is the role of government services in helping them move toward independence?

The study involves three waves of interviews with 141 youth leaving out-of-home care in Wisconsin. The first wave was conducted between February and May 1995, while they were still in foster care. The second wave was conducted after they had been out of care about 9 months, and the third will take place about two years after out-of-home care ended. The young people in the study had been in out-of-home care for at least 18 months, were 17 or 18 years old at the time they were selected, and were not developmentally disabled. They came from 42 different Wisconsin counties, though the largest proportion, about 30 percent of the sample, came from Milwaukee County. About 57 percent were women; 65 percent were white, 27 percent African American, and 6 percent Native American. Over half had one or more siblings in out-of-home care.

The first report from the study, "A Portrait of Children About to Leave Care," has been completed and made available through the World Wide Web site of the School of Social Work at the University of Wisconsin–Madison (http://polyglot.lss.wisc.edu/socwork/foster/). ■

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[1]R. M. Goerge, F. H. Wulczyn, and A. W. Harden, *Foster Care Dynamics 1983–1992: A Report from the Multistate Foster Care Data Archive* (Chicago: Chapin Hall Center for Children, 1994), pp. 21–23. The Archive is a longitudinal database that contains foster care histories for all children placed in a state-supervised substitute-care living arrangement between 1988 and 1994 in California, Illinois, Michigan, New York, Texas, and (recently added) Missouri. It is based upon administrative data systems operated by each state's child welfare agency. The six states together provide services to almost half of all children now in foster care in the United States.

[2]T. P. McDonald, R. I. Allen, A. Westerfelt, and I. Piliavin, *Assessing the Long-Term Effects of Foster Care: A Research Synthesis* (Washington, D.C.: CWLA Press, 1996).

[3]Eighteen of these studies were done in the United States.

[4]McDonald and others, *Assessing the Long-Term Effects of Foster Care*, pp. 26–27.

[5]McDonald and others, *Assessing the Long-Term Effects of Foster Care*, p. 142. In contrast, the authors note, a recent meta-analysis of the effects of anxiety on sports performance found 50 studies published between 1970 and 1988.

International project on indicators of children's well-being

Asher Ben-Arieh

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> The challenge for policy researchers and advocates is to press for the development of indicators that hold societies accountable for more than the safe warehousing of children and youth.
>
> K. Pittman and M. Irby, at the Jerusalem workshop.

Social indicators are widely recognized as an important tool in shaping social policies. But interest in child social indicators has been slow in developing, and efforts to collect data on children have been hampered by the fact that they are regularly included only in data about households, families, or mothers; they have not themselves been the subject of observation.[1]

In the last few years, some changes have occurred. There has been more active collection and publication of data specifically about children, and some major shifts in thinking about child social indicators have taken place. Four events have been important in setting a new intellectual context: the EuroSocial Childhood Program, and its major project on childhood as a sociological phenomenon; the conference on Indicators of Children's Well-Being held in November 1994 at Bethesda, Maryland; and the international project "Monitoring and Measuring Children's Well-Being," with its two international workshops, the first in Jerusalem, Israel, in January 1996 and the second in Campobasso, Italy, in June 1997.[2] The main conclusions of the international project members at these two workshops are reported in this article.[3]

The changing perspectives on child social indicators can be briefly characterized. First, although they are still important, long-used measures such as infant and child mortality rates, school enrollment rates, and percentage of children immunized are seen as insufficient to measure children's well-being beyond survival.[4] Second, most common measures of child development have pertained to deficiencies in achievement, problem behaviors, and negative circumstances. The absence of problems or failures, however, does not necessarily mean that children are growing and achieving well.

Thus, if we are to look for positive indicators of the well-being of children beyond survival, we must add new domains of enquiry to the traditional ones such as health and education, especially in the area of life skills and future well-being.

As part of the search for more thorough and accurate indicators of children's lives, experts from more than 20 countries, representing diverse disciplines (statistics, demography, social work, political science, international law, developmental psychology, economics, and community development), have joined together in an international project and have convened twice, so far, to discuss more appropriate measures of the well-being of children beyond survival.

The Jerusalem workshop

At this meeting, much time was spent in discussing possible conceptual frameworks that would permit regular and reliable measurement and monitoring.

Conceptual frameworks for measuring children's well-being

Accepting that children should be considered a separate social group is only a first step. Children and childhood can be perceived in different ways—as an age group, as a social class, and as part of an intergenerational family structure.[5] We must, therefore, agree on the definition of children and childhood and on the different domains which comprise their well-being, including both the objective conditions for that well-being and children's subjective perceptions and experiences. Measures of well-being must be based on a conceptual framework that integrates these perspectives.

Papers presented at the Jerusalem workshop have been published in A. Ben-Arieh and H. Wintersberger, eds., *Monitoring and Measuring the State of Children: Beyond Survival*, Eurosocial Report 62 (Vienna: European Centre, 1997). The publication is available through the project secretariat at the National Council for the Child, 20 Metudela St., Jerusalem 92306, Israel (Fax: 972-2-5636869).

The traditional framework of children's well-being is based on "professions–services" distinctions—that is, the different domains are contingent on the interests of professional disciplines or divided according to the different social services which deal with children. In such a framework, the main domains include demography, education, health, children at risk, and juvenile activity, among others. Another conceptual framework is provided by the U.N. Convention on the Rights of the Child, which distinguishes among four major areas: survival, protection, development, and participation.[6]

An alternative framework builds upon the relationship between enabling or risk factors and outcomes.[7] Enabling/risk factors are variables that influence the degree to which various outcomes are achieved. Many variables serve both as outcomes and as enabling factors for other outcomes. Health status is an outcome, but it facilitates many other outcomes by affecting a child's ability to participate in, or benefit from, various activities. In this context, we must also distinguish between structural and process variables. At the level of the family, family composition or parental characteristics are structural variables, but parenting techniques constitute a process variable. At the societal level, legal provisions for employed mothers are a structural variable, but the way in which employers relate to childrearing needs is a process variable.

In thinking about children's well-being, there exists an important distinction between concern with the present and concern with the future. From an intergenerational perspective, the child is both the progenitor of the adult and a future parent of subsequent generations of children. The link between the child and his or her adult self can find expression in a set of enabling factors that may be considered "life skills," both personal and civic. Life skills include knowledge, training, moral and social values, personality traits and habits, and ability to play an effective role in the family, the workplace, and the broader civil society.

A rationale for measurement

Participants in the Jerusalem meeting agreed that data on children should be collected not only through the household or the family but primarily by looking at the child as the unit of measurement. They also agreed that, in addition to cross-country comparisons, it is important to measure the disparity between those at the lowest rung of the economic ladder and those at the top within each country.

Even though many participants in the workshop accepted that the minefield of cross-cultural value judgments had already been crossed by the universal acceptance and ratification of the U.N. Convention on the Rights of the Child, finding specific indicators that reflected the Convention's principles proved to be a task fraught with problems, in part because of the many compromises and deliberate "fogginess" built into it.

> The conventional preoccupation with the so-called 'next generation' is basically a preoccupation with adults. . . . as a student of childhood, however, I dare venture an interest in present childhood as well as in future childhood.
>
> J. Qvortrup, at the Jerusalem workshop.

Almost everyone agreed on the importance of measuring the state of children's well-being beyond survival, though there were some differences of emphasis. Because issues beyond survival will vary with the child's life stage, it was also agreed that children's progress should be monitored within key transition stages from birth to adulthood, so as not to lose sight of the importance of continuous, appropriate support for development.

During workshop sessions, an effort was made to avoid the traditional areas of concern such as health, education, and economic measures. Instead, the discussion went on to issues such as children in families and communities, or children and society. Special emphasis was given to studying possible ways of measuring the development of personal and civil life skills among children, children's self-fulfillment, and costs and benefits of the lives of children. Not the least of our problems was that suggestions for specific indicators were constantly bumping heads against the low ceiling of data availability.

The process is not simply one of identifying new indicators. It requires defining outcomes beyond survival that are grounded within very different cultures and concepts of children's well-being. The complexity of this task means that we must broaden some assumptions and avoid others. In particular, two assumptions must be re-examined: that quantitative data are better than qualitative, and that an indicator is valid only if it can be applied identically across countries. First, conducting qualitative research, one aspect of primary social research, is immensely important for measuring and understanding the state of children, including their subjective well-being. Second, if social indicators are to be a tool for change, they must be accepted as valid by those in a position to change policies and assign resources. Thus the search for indicators will need to be equally concerned about definition and measurement and about implementation, even if the resulting indicators are less "scientific."

Monitoring beyond survival requires defining a purpose. Why monitor? Who is the audience? Whom are we trying to educate, inform, persuade? To meet these wider purposes, cost-benefit analyses should be extremely broad-based. What are the costs/benefits to the family, the immediate environment/community, the dominant society/culture, the economy? From a political perspective, decisions about investment in youth may be very much determined by who benefits and who pays. If it is perceived

that youth and families benefit but the larger society pays, there may not be strong political support for diverting additional resources to youth. Furthermore, as adults, we are concerned not only with the outcomes of childhood and adolescence but also with the quality of these life stages.

Some issues to consider

Issues that emerged in the Jerusalem discussion included the following:

1. Sources of information. The diversity of children's lives means that any attempt to develop indicators of children's well-being must be built upon a range of sources. The three major ones are administrative data, censuses and surveys, and primary social research.

Administrative data may be the best option for quickly developing more timely or new community and local indicators of children's well-being.[8] Administrative data, such as school reports, birth certificates, and child protection reports, are relatively inexpensive to gather. *Census or survey data* exist in all but the poorest countries, and are the main source from which context can be introduced into analysis of the well-being of children. *Primary social research* is necessary explicitly to address questions and gaps in our knowledge of aspects of children's lives.

2. Costs and benefits. Measuring and monitoring children's well-being is not cheap, although it is not necessarily more sophisticated or expensive than the measurement of other economic or social factors. Researchers must navigate between two extremes. If they devise indicators that try to capture the well-being of children in its entire complexity, they may drown in an ocean of details. If they tack the other way, looking for easily accessible, existing data when devising indicators, they may find themselves, as Robert Haveman comments, looking for the coin under the lamp instead of where it really is.[9]

3. Enhancing knowledge. The information gained from measuring the well-being of children should not be of a descriptive, general nature only, but should increase the knowledge base, enabling us to identify specific groups of children, those who are in distress or who are deprived as well as those who are better off.

4. Providing tools for better planning. Measuring the state of children is the first step in planning services, programs, and policy that will better address the specific needs of different children's groups. It may provide planners with a view of children's living conditions different from that represented by adults, illuminate the relative position and needs of children in comparison to other age groups in society, and, by highlighting children's contributions, provide an "economic" rationale for investing more resources in children.

5. Making monitoring possible. Regular measurement and publication of data on the state of children is vital for monitoring children's well-being and for monitoring and evaluating the success and failure of policies, services, and programs that seek to improve children's lives.

6. Enabling better evaluation. A reliable set of indicators of the well-being of young children could enable us to set goals for any early childhood intervention program, to evaluate the program's outcomes and achievements, and to make necessary adjustments.

The Campobasso workshop

Between the Jerusalem and the Campobasso workshops, subgroups of the international study group considered hundreds of discrete indicators within a variety of frameworks for organizing a view of children's lives. Their work was the basis for extended discussions by the entire group at Campobasso. It appears that a consensus is emerging that indicators should cover the following life domains:

Social connectedness. The child's social networks include family, peer, and community groups and can be measured according to density and quality. Such factors include children's participation in and perceptions of developmentally relevant activities such as school, informal education, recreation, and information networks and the structure they and their caregivers give to their lives.

Civil life skills. In democratic cultures, children can develop social and civic responsibilities in their early years, learning cooperation and participation in their small environments and gradually expanding their contributions as citizens as their environments expand with their evolving capacities. The nature and extent of their opportunities to express themselves, to learn respect for the rights of others and to honor diversity, or to practice skills for civic life can be assessed.

Personal life skills. Children must learn skills to contribute to their own well-being, including self-esteem and assertiveness and the capacity to learn and work. These areas can be assessed through culturally relevant measures of education, developmental resources for special needs, personal traits, work, and protection from work or educational exploitation. Also, measures can be developed to understand the economy of childhood, including children's capacity to contribute to their own economic circumstances.

Safety and physical status. Surveys of children and youth in many cultures often reveal that their primary concern is safety. Millions of children live in threatening circumstances because of family or community violence, sexual

exploitation, war and civil conflict, drought and famine, or their own institutionalization, homelessness, or refugee status. Even more are at risk because of inadequate health or mental health care. Measures can determine the nature and extent of such threats and the conditions under which children feel safe. Children can also tell us about how they promote their own wellness and safety.

Children's subcultures. Across political jurisdictions and cultures, children engage in work, play, creativity, consumption, social interactions, and other activities that are analogous to adult activities yet qualitatively different. Routine measurement and monitoring of key indicators can lead to fascinating discoveries about the resemblances between children's subcultures within diverse dominant cultures, enable us to understand the lives of children from a child-centered perspective, and inform policies to enhance their self-fulfillment and life satisfaction.

An array of existing measures provides a foundation for selecting key indicators of children's well-being in these domains. Many have methodological problems that affect cross-cultural and jurisdictional comparability, and they must be adapted for international monitoring.

If social indicators are to promote child well-being beyond survival and to influence social and political change, they must raise children's stature in the policy process by emphasizing the child as a unit of observation, reflecting the child's voice and perceptions, and enabling the child's rights. To be comprehensive, they should balance measures across various domains of children's lives and be carefully constructed to include current and historically excluded subpopulations of children (e.g., those with disabilities; indigenous, minority, very poor, or isolated populations; children separated from families; homeless, migrant, refugee, or immigrant children). Quantifiable and qualitative measures are necessary to portray the range, instability, and diversity of children's experiences. They should examine disaggregated data as well as central tendencies, and should address both children's behaviors and processes and the structures of which they are a part. They should be grounded in theory and research that meets the tests of valid and reliable measurement, and in a vision of childhood as a unique and inherently valuable phase of human life, when the pace of human growth and development is more rapid than at any other time. ■

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[1]N. Zill and C. W. Nord, *Running in Place: How American Families are Faring in a Changing Economy and an Individualistic Society* (Washington, D.C.: Child Trends, Inc., 1994); A. Ben-Arieh, *The State of the Child in Israel—A Statistical Abstract* (in English) (Jerusalem : The National Council for the Child, 1992, 1994); A. M. Jensen and A. Saporiti, *Do Children Count?* (Vienna: EuroSocial, 1992).

[2]J. Qvortrup, *Childhood as a Social Phenomenon: An Introduction to a Series of National Reports* (Vienna: EuroSocial, 1990); J. Qvortrup, *Childhood as a Social Phenomenon: Lessons from an International Project*, (Vienna: EuroSocial, 1993). The conference on Indicators of Children's Well-Being, for which IRP was a sponsor and organizer, is described in *Focus* 16, no. 3 (Spring 1995): 1–30 and has resulted in a published volume (see p. 67).

[3]The project is still under way. A third and concluding workshop will take place at the end of 1998 in the United States.

[4]J. L. Aber. "Measuring Child Poverty for Use in Comparative Policy Analysis" and K. Pittman and M. Irby, "Promoting Investment in Life Skills: Beyond Indicators for Survival and Problem Prevention," both in *Monitoring and Measuring the State of Children*.

[5]T. Dolev and J. Habib, "A Conceptual Framework for Efforts to Develop Indicators of the Child in Society," in *Monitoring and Measuring the State of Children*.

[6]A. B. Andrews and N. K. Kaufman, eds., *The Child's Right to a Standard of Living Adequate for Development* (Westport, CT: Greenwood, forthcoming).

[7]T. Dolev and J. Habib, "A Conceptual Framework."

[8]R. M. Goerge, "Potentials and Problems in Developing Indicators of Child Well-Being from Administrative Data," in R. M. Hauser, B. V. Brown, and W. Prosser, eds. *Indicators of Children's Well-Being* (New York: Russell Sage, 1997), and "The Uses of Administrative Data in Measuring the State of Children," in *Monitoring and Measuring the State of Children.*

[9]R. Haveman, "Assessing Children's Well-Being: How Many and Which Indicators, and at What Cost?" in *Indicators of Children's Well-Being: Conference Papers, Vol. 1*, IRP Special Report 60a, University of Wisconsin–Madison, 1995.

The Project on State-Level Child Outcomes

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Between 1993 and 1996, before the passage of the 1996 welfare legislation, 43 states began implementing welfare reform demonstrations under federal 1115 waivers.[1] As a condition of obtaining a waiver, states were required to conduct an evaluation of the impact of their welfare reform demonstrations, primarily focusing on adult outcomes and behaviors. The Project on State-Level Child Outcomes was initiated by the U.S. Department of Health and Human Services (HHS) because available data sources do not allow researchers and policy makers adequately to examine the effects of state-level welfare programs on children. Two agencies of HHS, the Office of Planning, Research, and Evaluation at the Administration for Children and Families (ACF), and the Office of the Assistant Secretary for Planning and Evaluation (ASPE), are working with states and other groups to improve the measurement of child outcomes in state welfare evaluations and in other state data systems.

Twelve states received one-year grants from HHS to develop plans to augment existing evaluations of their waiver demonstration programs with measures of child well-being, and to improve their state data systems. These 12 states are: California, Connecticut, Florida, Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, Oregon, Vermont, and Virginia.[2] There are two phases to the project. The planning phase ran from fall 1996 to summer 1997. The second, operational phase begins in the fall of 1997 and will continue for three years. The NICHD Family and Child Well-Being Research Network, led by Child Trends, is coordinating research technical assistance in both phases.

State 1115 waiver provisions are of two kinds. *Employment-related provisions* include earned income disregards, subsidies, and work and training requirements. Most states had some mix of these provisions. *Personal responsibility provisions* include policies such as time limits, family caps, and school attendance and immunization requirements. Most states had time limits and stringent sanction rules.

In their planning phase proposals to HHS, some states had proposed to use strictly administrative data to measure child outcomes, whereas others had proposed to field either a telephone or in-home survey. Most had either proposed to integrate various databases or had already done so. Some states proposed adding measures of parenting and parent psychological well-being, or child variables in multiple domains of development. Others were interested in adding only variables that were seen as directly related to their welfare policies.

The planning phase

The primary goal for this phase was the development of a "common core" of measures of family and child well-being that states could incorporate in their evaluations. These measures will be added to the evaluations by the states that are awarded funds for the second, operational phase. After extended discussions at two national and two regional meetings, participant states reached consensus on the measures listed in Table 1.

Other major themes of the planning phase included:

(1) Data collection. Participants examined seven types of data collection strategies, including administrative records, telephone and teacher surveys, in-home surveys, direct child assessments, self-administered questionnaires, and in-home observational studies. Each strategy was rated on cost, richness, and breadth of the child data that could be collected.

(2) Building common definitions. One of the first steps in the technical assistance process was to develop a set of common definitions that all project participants would be familiar with and would use. The list of definitions evolved as the year unfolded, and came to be known as the "Four I's": indicators, impact studies, intervening mechanisms, and inferential studies.

(3) Child care. State representatives had questions about how to measure the use of subsidies for child care and the effects of policies on the supply and demand for care. A February 1997 meeting examined key child care issues in the new welfare policy context.

(4) Development of state-level indicators and how they can be used. Participants at a meeting in April 1997 worked on the development of indicators to (1) present a picture of how children are faring over time, (2) address welfare entry effects, (3) monitor unintended as well as intended outcomes, and (4) track initial versus delayed outcomes. Indicators can reflect rapid policy changes that experimental design studies may not be able to detect.

The operational phase

At the end of May 1997, 11 of the 12 states submitted competitive applications for funds to add data collection and other related activities to their current evaluations over

Table 1
Core Constructs

TARGET OF WELFARE POLICIES	OTHER VARIABLES LIKELY TO BE AFFECTED BY STATE POLICIES	ASPECT OF CHILD'S ENVIRONMENT LIKELY TO BE AFFECTED BY PREVIOUS COLUMNS	CHILD OUTCOMES
INCOME Total income	**PSYCHOLOGICAL WELL-BEING** Depression	**CHILD CARE** Type	**EDUCATION** Engagement in school (ages 6–12)
Sources of income (mother' earnings, father's earnings, child support, AFDC, food stamps, SSI, Foster Care/adoption	**STABILITY AND TURBULENCE** Foster care	Extent	School attendance (All Child)
Stability of income	Stability in child care	Quality (group size, ratio, licensing, parent perception)	School performance (All Child)
Financial strain/Material hardship	Stability in income	Stability	Suspended/expelled (All Child)
EMPLOYMENT Any vs. none	Number of moves of residence	*Child Care Calendar for last several years*	Grades (ages 6–12)
Health benefits through employment	Change in marital status or cohabitation	**HOME ENVIRONMENT AND PARENTING PRACTICES** Child abuse/neglect (administrative data)	**HEALTH AND SAFETY** Hunger/nutrition (ages 5–12)
Wages (hourly)	Why child not living with family	Domestic violence/abusive relationships	Regular source of care (ages 5–12)
Hours of employment	**ABSENT PARENT INVOLVEMENT** Whether child support provided	Family routines	Teen childbearing (ages 14–17) (All Child)
Stability of employment	Paternity establishment	Aggravation/stress in parenting	Accidents and injuries (All Child)
Education/Licenses	Frequency of contact with child	*HOME (Emotional Support and Cognitive Stimulation Scales)*	**SOCIAL AND EMOTIONAL ADJUSTMENT**
Job skills (hard)	**USE OF HEALTH AND HUMAN SERVICES** Food stamps		Behavior problems index (ages 5–12)
Multiple jobs concurrently	Medicaid (awareness, use, eligibility)		Arrests (All Child)
Barriers to employment (harassment, violence)	Child care subsidy (awareness, use, eligibility)		Positive behaviors/Social Competence Scale (ages 5–12)
FAMILY FORMATION Nonmarital birth/marital birth	Access to medical care		Constructs in italics = In-Home Survey
Child/family living arrangements	**CONSUMPTION** Percent of income spent on child care and rent		All Child = All Child Module
Marital status, whether married to biological or nonbiological father			

Source: Child Trends, Inc.

the three-year operational phase. The five states selected to receive additional awards to support large-scale data collection activities for their impact studies are Connecticut, Florida, Indiana, Iowa, and Minnesota. In addition to the core funding provided by ACF and ASPE, we anticipate that other federal agencies and private foundations will provide supplementary funding to support a broader range of activities and participants.

Publications related to the project can be ordered by calling Child Trends at 202-362-5580, or via the Internet, www.childtrends.org ■

[1]See E. Boehnen and T. Corbett, "Welfare Waivers: Some Salient Trends," *Focus* 18, no. 1 (special issue 1996): 34–37.

[2]ACF is providing grants to states instituting welfare reform demonstrations to augment their demonstration evaluations with measures of child outcomes and also to expand their data capability to track state-level indicators of child well-being. With funding from ASPE and the other federal contributors and private foundations, the states are receiving technical support on these activities from leading researchers who are members of the NICHD Family and Child Well-Being Research Network. Additional federal funding has been provided by the U.S. Department of Agriculture, the National Institute of Child Health and Human Development, and the Centers for Disease Control and Prevention. Private foundations that have contributed support to the organization of national meetings, the provision of technical assistance to the states, and the preparation and dissemination of written products include the Annie E. Casey Foundation, the Edna McConnell Clark Foundation, the George Gund Foundation, and the Smith Richardson Foundation. Representatives from other private foundations including the Freddie Mac Foundation, the Ford Foundation, the Charles Stewart Mott Foundation, the Rockefeller Foundation, and the Foundation for Child Development participated in the national meetings of project participants and third-party evaluators.

Indicators of Children's Well-Being

Robert M. Hauser, Brett V. Brown, and William Prosser, editors

This new publication is an inquiry into current efforts to monitor children from the prenatal period through adolescence. Experts from multiple disciplines assess how data on physical development, education, economic security, family and neighborhood conditions, and social behavior are collected and analyzed, what findings they reveal, and what improvements are needed to create a more comprehensive and policy-relevant system of measurement.

Essays on children's material well-being show why income data must be supplemented with assessments of housing, medical care, household expenditure, food consumption, and education. Other contributors urge refinements to existing survey instruments such as the Census and the Current Population Survey. The usefulness of records from human service agencies, child welfare records, and juvenile court statistics is also evaluated.

Robert M. Hauser is Vilas Research Professor of Sociology and Affiliate, Institute for Research on Poverty, the University of Wisconsin–Madison. Brett V. Brown is Research Associate at Child Trends, Inc. William R. Prosser is Adjunct Professor, Georgetown University Public Policy Program.

Introduction

Indicators of Children's Well-Being: A Review of Current Indicators Based on Data From the Federal Statistical System (Brett V. Brown)
Criteria for Indicators of Child Well-Being (Kristin A. Moore)

Health

Population Indicators of Prenatal and Infant Health (Paula Lantz and Melissa Partin)
Health Indicators for Preschool Children (Barbara L. Wolfe and James Sears)
Health Indicators for Preadolescent School-Age Children (Barbara Starfeld)
Adolescent Health Indicators (Arthur B. Elster)

Education

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Potential and Problems in Developing Indicators of Child Well-Being from Administrative Data (Robert M. Goerge)
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Children in Dire Straits: How Do We Know Whether We Are Progressing? (William Prosser and Matthew Stagner)

***Indicators of Children's Well-Being* is scheduled for publication in November 1997 by the Russell Sage Foundation, 112 East 64th Street, New York, New York 10021.**

The dynamics of homelessness: A longitudinal study

Yin-Ling Irene Wong and Irving Piliavin

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Cross-sectional studies of the homeless have clarified our understanding of who the homeless are.[1] It is clear, for example, that the demographics of homelessness started to change in the 1980s, as more families began turning up in shelters. Perhaps over half the homeless are now thought to be women with children, whereas single, often highly migratory males previously predominated. But there is still no consensus definition of homelessness: Is it a life style, or a condition of alienation or disaffiliation from society, or simply "houselessness"—not having customary and regular access to a conventional dwelling? Do its causes lie in personal deficits such as poor physical health, mental illness, substance abuse, or marginal skills, or do they lie in larger structural forces beyond the control of the individual—the decline of the low-wage labor market, the rise of single-parent, very low income families, the loss of low-rent housing in urban areas, or racial prejudice?

If the facts of homelessness are still obscure, the *dynamics* of homelessness are even more so. Is homelessness a permanent condition for most of the homeless, or a revolving door? What personal and institutional factors affect how people enter and exit from homelessness? What role is played by social welfare programs? by employment? by the informal social resources available to homeless people? To begin to answer such questions, longitudinal data are necessary, but there are many difficulties confronting longitudinal study of so highly mobile a population.

Thus the Study of Alameda County Residents (STAR) in California offers a rare opportunity to explore such issues. Originated by Irving Piliavin and conducted from 1991 to 1993, STAR drew a random sample of the homeless population—those using either shelters or meal programs. In all, researchers interviewed 564 homeless peo-ple from 28 shelters and 23 meal programs. They asked about previous homeless experiences, physical and mental health and substance abuse, service utilization, employment history, family relationships, criminal history, and self-perceptions. Rather than relying on self-reports, researchers also made use of standard measurement instruments to assess, for example, mental illness. Strenuous follow-up efforts enabled STAR to locate 473 of those originally interviewed for a second interview about six months later and 397 people for a third interview some six to ten months after that.

The studies reported here are among the first to use the STAR data to explore the dynamics of homelessness and, in particular, transitions out of the homeless state.[2] Not surprisingly, the homeless constitute a heterogeneous group, although African Americans are notably overrepresented. Only about 18 percent of Alameda County residents and less than half of the population of the city of Oakland are African Americans, but they constitute over 60 percent of the homeless in the sample. Also notable is the number of respondents with at least a high school education and with quite extended employment histories—single men more so than women. (See Table 1.)

Our research documented three clear patterns of homelessness. About 18 percent of all those interviewed were continuously homeless. Another 37 percent found housing and did not return to the streets. Their circumstances were not particularly stable, however, for most moved at least once more during the period of the survey. The largest portion, over 45 percent, were episodically homeless: they left and returned to the streets at least once. These patterns of homelessness were not randomly distributed. The incidence of "unrelieved" homelessness among single men was twice that for single women, and four times that for women with children. Among families, 58 percent of those who found housing did not return to the streets. But over one-third did return, suggesting how unstable the transition to housing may be.[3] Episodic homelessness was considerably higher among single women than among single men or women with children, but here too the groups differed. The average time spent in housing was longest for women with children (7.6 months), much less for single men (4.4 months).

Our analyses confirmed the perception that women, especially those with children, exit periods of homelessness more rapidly and more often than do males. But the statistics on employment, drug use, and mental illness among women with children in the STAR sample cast some doubt upon the common assumption that homeless families are primarily the victims of structural forces, single homeless individuals of their personal vulnerabilities. Women with children had no lower incidence of personal deficits and difficulties than did many single homeless individuals. Their ability to leave the streets was, rather, related to their greater access to institutional resources compared to single individuals: 39 percent of women with children and 33 percent of single women, but only 2 percent of men who found apartments received government housing subsidies. Income instability may play a role: women with children

Table 1
Demographic Attributes and Personal Circumstances of Homeless Alameda County Residents

Characteristics and Personal Circumstances[a]	Single Mothers with Children	Single Women	Single Men
Sample members located at follow-up interviews	***66***	***83***	***294***
Age (mean)	31.2 yr	36.0 yr	38.0 yr
Race/ethnicity			
Black	72.7%	63.9%	65.0%
White, not Hispanic	10.6%	22.9%	24.1
Hispanic	10.6%	4.8%	4.8%
Other	6.1%	8.4%	6.2%
Marital status			
Married	4.6%	3.6%	3.7%
Separated, divorced, or widowed	42.4%	50.6%	45.6%
Never married	53.0%	45.8%	50.7%
Ever in childhood foster care	13.6%	15.7%	11.9%
Ever had children	100.0%	71.1%	57.5%
Ever had child removed to state custody	18.3%	28.8%	5.3%
Mean age of youngest child[b]	3.5 yr	8.1 yr	8.8 yr
Education high school and above	71.2%	73.5%	72.7%
Employment			
Worked 50% time or more since age 18	62.1%	63.9%	79.3%
Employed during Wave 1 interview	6.1%	10.8%	16.0%
Health status			
Excellent/good[c]	68.2%	46.3%	65.7%
Fair/poor[c]	31.8%	53.7%	34.3%
Mental disabilities[d]	24.2%	25.3%	15.7%
Alcoholism[d]	15.2%	24.1%	32.0%
Drug problem[d]	30.3%	27.7%	32.7%
Welfare benefits[e]			
Participated in any program			
At Wave 1	77.3%	48.2%	47.3%
Across all waves	97.0%	80.7%	80.6%
AFDC			
Always on	47.5%	16.7%	0.0%
On but cut off	11.5%	27.8%	0.0%
Discontinued use but not cut off	41.0%	55.6%	N/A
SSI/SSDI	10.6%	20.5%	21.1%
General Assistance			
Always on	0.0%	12.5%	8.1%
On but cut off	0.0%	40.0%	51.4
Discontinued use but not cut off	N/A	47.5%	40.5%
Sample members who reported an exit at follow-up interviews	***62***	***68***	***191***
Employed at least 50% time	12.9%	36.8%	34.0%
Access to subsidized housing	54.8%	23.5%	12.6%
Enrolled in any cash benefits program	98.4%	69.1%	70.7%
Financial support from friends or relatives	38.7%	30.9%	30.9%
Returned to homelessness within 1 yr	33.9%	55.9%	68.1%

[a]Measured for sample members who were located at follow-up interviews.
[b]Among those with children under 18.
[c]Self-report.
[d]Diagnosis.
[e]Participation observed across all three waves.

who were on welfare were more likely to be receiving Aid to Families with Dependent Children (AFDC), whereas men were most likely to be on General Assistance (GA), a far less stable benefit. The ending of entitlement status for welfare under the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 may well have a detrimental effect on these marginally housed families by increasing their risk of recurrent and chronic homelessness.

Single women left the streets at about the same rate as families, but their hold on conventional housing was more tenuous, as noted earlier. A plausible explanation for their faster rate of exit than single men invokes both the greater propensity among women to double up and different patterns of kin obligation toward women—the strongest family obligation norms extend to unattached daughters and to one's mother.[4] More than one-half (57 percent) of the single women in the STAR sample found housing with a friend or relative, but only about one-third of single men did so.

The differences that emerge from the longitudinal data in the Alameda County study make it clear that future studies of the homeless should not restrict themselves to the transition patterns of homeless populations in their entirety, but should also examine homeless subpopulations based on gender, family status, and other attributes. Effective strategies for relieving homelessness among episodically homeless single women, for example, may be very different from those required for chronically homeless single men. Unexpectedly, even among single men, the majority did succeed in making at least one transition out of the homeless state during the course of the survey. And there are other unexpected and sometimes puzzling findings. We found, for example, that single African-American men were less likely to exit homeless spells than others, and single African-American women had a higher rate of return to the streets than their non-African-American counterparts. And the role of employment, which was much more common among single men than either group of women, remains obscure: Did it contribute to the ability to find a permanent domicile, or was it a consequence of that more settled state?

Cross-sectional data cannot answer such questions, and even quantitative longitudinal data are not by themselves necessarily sufficient. The STAR survey, with its rich body of qualitative information, can deepen our understanding. ■

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[1]A useful brief summary and bibliography of current research and of federal, state, and local policies is J. Weinreb, *Housing Is Not Enough: Helping Homeless Families Achieve Self-Sufficiency*, a background briefing by the Family Impact Seminar, Washington, D.C., 1996.

[2]Y.-L.I. Wong and I. Piliavin, "A Dynamic Analysis of Homeless-Domicile Transitions," *Social Problems* 44, no. 3 (August 1997): 408–423.

[3]Among women with families, a diagnosis of mental health problems was significantly linked to the likelihood that the family would return to the streets.

[4]A. S. Rossi and P. H. Rossi, *Of Human Bonding: Parent-Child Relations across the Life Course* (New York: Aldine de Gruyter, 1989).

Pathways off the streets: Homeless people and their use of resources

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If we conceive of homeless people as rational actors, and homelessness as a residential state in which people are trying to do the best they can for themselves, then several important consequences follow. We demystify the popular view that homelessness is a social abyss, to be avoided at all costs, and that the homeless are passive victims of structural forces or their personal failings. It also becomes clear that homelessness should not be studied in isolation: transitions into and out of homelessness should be located in a continuum of housing transitions in general. And the homeless, however constrained their circumstances, should be seen as making choices about the allocation of their available resources to improve their well-being.

From this perspective, I explored the resources available to homeless people, the ways in which they made use of those resources to meet their priorities, and the processes by which many of them left homelessness and some returned.[1] The Study of Alameda County Residents (STAR) in California, carried out from 1991 to 1993, offers an unusual opportunity to look beyond a mere accounting of who is homeless at a particular time. Its quantitative data tell us who left the streets and whether they returned, and what the demographic characteristics and the material and social resources of homeless people were. Its rich qualitative data enabled me to examine people's values, perceptions, and priorities, and to interpret unexpected findings.

All else being equal, the STAR data show, homeless people prefer to be housed, as we would expect. Homelessness entails physical discomforts and dangers, such as the heightened risk of theft or assault. It also is accompanied by social and emotional hardships, and these ranked higher in the judgment of the homeless than did physical discomforts: they spoke of the lack of privacy in shelters, the often arbitrary rules to which they were subject, the guilt and shame of being unable to provide a real home for children. Above all, homeless people valued having their own place, which held the promise of personal autonomy and comfort absent on the streets and in shelters. Respondents on occasion used a good part of their monthly incomes just to rent a hotel room and be on their own for several days.

During the STAR study, over 70 percent of the homeless in the survey left the streets; 27 percent of them went to shared lodgings, and 22 percent to their own place. Fewer, and roughly equal numbers, went to hotels, to housing provided by social services, and to jails or hospitals. But over one-half (58 percent) of those who exited returned to the streets before the end of the study, especially those who had moved to shared housing (74 percent) or social service housing (61 percent). Least likely to return were those who moved to their own place; nonetheless, 42 percent of them were homeless at least once more before the study ended.

The qualitative interviews illuminate the conditions of these high exit rates and the high rates of return to the streets. Although acquisition of stable housing is a high priority for homeless people, it may not always be the highest. More immediate needs, such as eating, or social and psychological comfort, or drug and alcohol addiction may preempt that priority. A neighborhood may be so dangerous or so unfamiliar as to make homelessness seem preferable. A violence-prone spouse or roommate may drive someone to leave stable housing for the streets or shelters. Overcrowding and arguments in shared housing may cause people to leave.

The resources of homeless people

In exploring the dynamics of homelessness, we begin with resources. Material and social resources are differently and not randomly distributed among homeless people, and people differ in their capacity to make use of the resources at their disposal.

The resources available to homeless people fall under three main rubrics: human capital, which determines employment and employability; "social welfare capital," which encompasses both eligibility for social welfare programs and the likelihood that an individual will obtain benefits; and social capital, which is found in many types of social relationships, but most importantly in relationships with family and with other homeless people.[2]

Using the quantitative data, I explored the extent to which these resources were significantly associated with the propensity of people to leave the homeless state. Table 1 describes the distribution of material resources, according to some demographic and personal characteristics of respondents. Table 2 looks at the distribution of social support from relatives.

Table 1
Monthly Incomes of Alameda County Homeless Residents

Personal Characteristics	Employment		Social Welfare Benefits				
	Employed in Previous Month (%)	Earnings for Those Employed ($)	% Receiving at Wave 1				Total Benefit Income
			AFDC	GA	SSI/SSDI	Housing Assistance	
Male	36	$390	0.5	26	9	8	$205
Female	24	491	28	16	11	32	356
Children							
With child	25	637	52	0.6	9	42	492
Without child	34	386	1	27	9	11	209
Race							
White	35	386	3	19	9	7	198
Black	31	416	9	27	8	16	253
Other	46	407	10	13	19	19	258
Education							
H.S. grad.	37	452	7	22	7	17	223
Not H.S. grad.	25	254	7	28	13	8	284
With voc. training	37	441	7	30	6	13	244
Without voc. training	31	376	7	18	12	15	238
% of adulthood worked							
0–24	26	149	13	10	19	14	300
25–50	20	283	8	36	12	17	280
51–75	45	435	3	15	7	10	169
76–100	43	510	7	20	5	14	224
Mental illness							
Current mental illness	30	413	5	25	15	16	251
No mental illness	34	407	8	23	8	14	239
Physical health							
Poor/bad	24	312	7	26	12	12	254
Good/fair	39	440	7	22	8	15	235
Alcohol abuse							
Current abuse	41	332	5	23	12	8	230
No abuse	30	449	8	24	8	16	246
Drug use							
Current use	34	386	9	32	7	13	256
No use	33	419	6	20	11	14	234
Previous homeless spells							
None	36	486	9	23	5	19	229
One to four	32	329	9	24	7	15	227
Five +	32	357	3	24	20	5	279

Note: N = 468 to 479.

Differences among resources and their use are not necessarily what we might assume from stereotypes of the homeless. Unexpected results arose in the quantitative data, concerning race, mental illness, drug use, employment, social welfare programs, and social capital. Among their other uses, the qualitative data suggest possible explanations for these findings, and I briefly comment on the more interesting among them here.

The dynamics of homelessness: Some unexpected findings

Race

African-American respondents in STAR reported more resources than white respondents—General Assistance (GA), housing assistance, help from close relatives and family, and other income—yet left the streets at rates 25 percent lower than whites. When they did leave, they were far less likely to move to their own place or to hotels than were whites (17 percent versus 32 percent and 11 percent versus 17 percent, respectively) and were more likely to move to shared housing (28 percent versus 20 percent).

Part of the explanation may lie in the weaker credit histories of African-American respondents compared to whites. Applicants lacking such histories are at a distinct disadvantage in the housing market. In the second-wave interviews, 40 percent of African Americans and only 30 percent of whites said that they had recently had trouble finding housing because of bad credit or no credit history. One woman commented, “It is basically a money and credit thing. I found that quite a few apartments, even studios, checked you out and studied your TRW [credit report]—the past like where you lived and stuff.” Another had no credit history, “because I lived with my mother all that time.”

Table 2
Levels of Social Support from Relatives for Alameda County Homeless Residents

Personal Characteristics	Current Family Relationships: No. of Close Relatives	Current Family Relationships: Frequent Contact (%)	Previous Support from Any Relatives: Received Housing (%)	Previous Support from Any Relatives: Received Money (%)
Male	2.7	47	42	22
Female	2.2	64	46	20
Children				
With child	2.5	73	46	15
Without child	2.6	48	42	22
Race				
White	1.5	42	24	15
Black	3.1	54	49	23
Other	1.9	48	43	29
Education				
H.S. grad.	2.7	52	45	23
Not H.S. grad.	2.2	49	38	18
With voc. training	2.8	58	42	24
Without voc. training	2.4	45	43	19
Mental illness				
Current mental illness	2.1	54	37	27
No mental illness	2.7	50	44	20
Physical health				
Poor/bad	1.9	52	41	20
Good/fair	3.0	50	44	22
Alcohol abuse				
Current abuse	2.3	44	40	22
No abuse	2.7	54	44	22
Drug use				
Current use	2.9	59	46	32
No use	2.5	47	41	16
Length of current homeless spell				
< 1 mo.	2.8	67	48	26
1–6 mo.	2.7	48	47	25
6 mo. +	2.3	41	30	11

Note: N = 468 to 479.

In none of the qualitative interviews did African Americans claim they had been discriminated against because of their race (though some whites claimed reverse discrimination), and there is only mixed evidence in the quantitative data suggesting that such discrimination did indeed exist. What did emerge from interviews was the limited availability of housing in neighborhoods that blacks wanted to live in. Many good apartments appear to have been in white neighborhoods, where African Americans felt uncomfortable. Said one black woman, who received housing assistance in Livermore, about 30 miles from Oakland: "I don't like living in an all-white community. . . . Hell, I don't like living where I'll never have a friend. I am stuck."

Mental illness

The effects of mental illness among the STAR respondents were confounded by age and alcohol abuse. There were substantially more mentally ill respondents in their forties, and respondents aged 40–49 had very low exit rates. Mentally ill respondents were also diagnosed as alcoholic more often than those who were not mentally ill (39 percent versus 27 percent), and alcohol abusers are somewhat less likely to exit the streets. After taking these attributes into account, I found that mentally ill respondents were more likely to leave than those who were not mentally ill, and that they were also more likely to be taken in by others than to exit to independent housing.

The most promising explanation for these circumstances lies in the relationship between mentally ill homeless people and their families. Homeless people, in general, tend to wear out the material and emotional support available to them from family members; many also come from very poor families. Mental illness changes both of these characteristics: on the one hand, it puts more strain on family relationships, but on the other, the families of the mentally ill homeless have, comparatively speaking, more resources to give.[3] This suggests a pattern of episodic homelessness that is borne out by stories told by the Alameda County respondents.

Drug use

Drug users had greater resources, especially income and social support, than nonusers, and left the streets more often. However, such exits in general occurred only after users had been homeless for several months—that is, drug use had a lagged or delayed effect on exiting (unlike

the mentally ill, drug users did not move to any one type of housing). The qualitative interviews suggest a reason: homelessness eventually drives some drug users to quit, and the cessation of drug use frees up income for housing. Of the 149 respondents who were diagnosed as having a drug problem at the time of their first interview, 28 percent reported at their last interview that they had sought treatment, and 58 percent claimed not to have used drugs since the first interview. Of this last group, 78 percent had been able to acquire housing.

Drug users mentioned both the financial and emotional costs of their habits. One woman estimated that her addiction cost her "about $60 a day, for 30 days $1800." Others spoke of enrolling in treatment programs because they were "tired" of drugs: "I am getting too old for it," said a 42-year-old man, "I am tired of drugs period. I am tired of doing what it takes to get them and taking the chances you have to take."

Employment

Contrary to what one would expect, employment had no significant relationship with exits from homelessness in the quantitative analyses. The qualitative data provide a simple answer: many respondents commented that the jobs they found were too intermittent and paid too little to increase their chances for housing. Among respondents who worked, the median income was $300, less than the going rent of $400–$500 reported for low-income apartments in Alameda County.

In several cases, employment directly provided housing itself. Some people house-sat; some cared for children or the elderly; others worked as assistants or caretakers in transitional housing or apartments. The impression given by the qualitative interviews is that the main prerequisite for such room-and-board employment is a perceived trustworthiness rather than any particular employment skill.

The timing of employment relative to homelessness is also important. Respondents consistently described a pattern in which work followed rather than preceded the acquisition of housing (the same pattern held true for vocational training and education). The true value of stable employment for homeless people may lie in preventing their return to the streets rather than in encouraging their exit in the first place. The homeless state creates numerous logistical obstacles and difficulties in finding work or attending classes: lack of bathing facilities and storage for spare clothes or documents, no permanent address for correspondence, and restricted access to telephones.

Social welfare programs

Like employment, receipt of General Assistance (GA) did not result in more exits from homelessness, and the answer often given by respondents was the same: GA payments—averaging around $340 a month—were insufficient for most low-income apartments. A few respondents shared housing and were able to get by on GA. Others signed up for a program that paid GA directly to their landlords, but they found themselves with $30–$40 a month left for food, clothing, and everything else after the rent was paid.

A key aspect of welfare programs in relation to housing is their stability. Of the programs most commonly used by STAR respondents, Supplemental Security Income (SSI) was both the hardest to get and the most stable—only 6 percent of recipients ceased to receive benefits between the first and third interviews. In contrast, one-fifth of GA recipients and about one-third of AFDC recipients were no longer receiving benefits at the second interview. The perception that benefits will be stable seems to alter the willingness of people to plan for their future; those respondents with the most stable benefits, SSI or Section 8 (subsidized housing) certificates, were also the most likely to be planning ahead in obtaining and maintaining housing. Landlords, too, are well aware of the differences between recipients with such stable benefits and those with unstable benefits such as GA. "When we finally got our Section 8 it became a little easier because, you know, landlords like start to salivate when you say Section 8," said one single mother, describing her previous difficulties in finding housing.

Eligibility for benefits is not the same as acquiring them. Respondents differed considerably in their ability to make use of these resources. Though almost all STAR respondents were eligible for some form of welfare, only about six in ten of them had received income from welfare in the month before their first interview. Those who did receive benefits often described extraordinary persistence in their dealings with social welfare agencies: "You can't ever give up. You just have to keep [applying] over and over until an agency finally helps you." In contrast is a 38-year-old woman who was told several times that she would qualify for SSI, and that it would pay her much more than her present GA. But she was unwilling to go downtown to fill out the necessary forms because "by the time I do that and come back here, then I would be too tired."

Social capital

One aspect of social capital—credit histories—has already been noted in conjunction with race. From the qualitative data, two others emerged: people who formed romantic partnerships saw dramatic increases in their levels of social support, and issues of equity and fairness permeated the exchange of social support in almost all relationships.

The formation of new partnerships or the repair or renewal of old ones, often with people who were not themselves homeless, emerged in the personal anecdotes as an important reason for leaving the streets.[4] Episodic homelessness was also related to the vagaries of emotional relationships. One woman occasionally left her older boyfriend, even when it meant moving into a homeless shelter: "It is not

because he'd make me leave or anything like that . . . sometimes he smothers me." She had, so far, always returned: "I'll be needing his support in helping me . . . financial-wise and he is someone I can talk to."

Social resources, too, were sometimes held in reserve for future emergencies, whereas economic resources were less likely to be. One woman had stayed with her sister previously, but she did not want to go back "unless it comes to an emergency where I have to."

Of the social resources available to homeless people, relationships with other homeless people had surprisingly little value for exiting homelessness. The low level of commitment in such relationships has been noted in other studies, but the reason for the lack of cooperative endeavors, such as sharing rent in order to acquire an apartment, is unclear. Perhaps the homeless perceive each other as having few resources to share; perhaps trust and cooperation do not easily emerge among highly mobile people who do not readily envision consistent future interactions with others in the same state.

Regardless of the type of relationship, equity issues pervaded respondents' discussions of social relationships. Given the impoverishment of the homeless, one might assume that they would gratefully receive any support offered. Instead, people consistently evaluated the exchange dynamics of their relationships in terms of fairness, and would accept or reject support on that basis. Respondents refused help from family members or friends because of the burden it imposed on the others or the obligations that they themselves might accrue. Others were willing to accept shelter when they had something to offer in return; one man, for example, went to live with his uncle because "his wife had left him and he was pretty lonely."

The importance of autonomy

A desire for autonomy—self-sufficiency and independence from the control of others—was not measured in the quantitative data, but it frequently surfaced in the qualitative interviews as important in making housing and resource decisions. One man refused to live with family members who were willing to offer him a home because "I am used to doing things all on my own, and making things on my own, making my own money, supporting my children or my spouse or whoever I am with at the time." A woman refused to apply for AFDC: "Once you get on it, it's hard to get off."

A desire for autonomy might prevent people from leaving the streets, especially for shared lodgings or agency housing. But as a strong motivator in the desire for one's own place, it might cause less frequent but more stable departures from homelessness.

Decision making by homeless people

People become homeless in the first place because of a deficiency of resources—they cannot pay the rent or live with others. Yet many homeless people have enough resources to leave the streets. Clearly, somewhere between the onset of homelessness and exit, a change in resources occurs. Some resources are acquired only after people become homeless: they receive higher priority for housing assistance, for example. Other resources that have been lost are reacquired: ruptured relations with relatives or partners are restored, for example.

From the perspective of homeless people, resources have opportunity costs as well as benefits. Receipt of income from employment may mean that one cannot receive it from social welfare programs, yet income from work may not in itself be enough to pay rent. The conditional nature of some income is thus important in estimating the effect of the resources of the homeless. So too are differences in the capacity to acquire social welfare benefits: perhaps the effort and persistence that make some people more likely to achieve benefits for which many more are eligible also procure them permanent housing.

The day-to-day changes of homelessness are one of its most damning aspects. They take a severe emotional toll, and make planning for the future very difficult. But to ignore the actions of homeless people in favor of structural or personal-deficit explanations of homelessness is to oversimplify its nature. The Alameda County homeless acted rationally by any standards, in that they valued conventional housing highly, typically saw themselves as having multiple housing options, and engaged in often complex and effective decisions about the use of economic and social resources. ■

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[1]B. R. E. Wright, "Pathways off the Streets: Homeless People and Their Use of Resources," Ph.D. dissertation, Department of Sociology, University of Wisconsin–Madison, 1996. I define exits from homelessness as 30 days of voluntary, continuous residence in conventional housing; this excludes, for example, involuntary exit to jails or institutions, and brief stays in shared housing or a hotel.

[2]The extent of social isolation among homeless people has been long debated. Those who argue that they are socially isolated point to the social histories of homeless men, which are different from those of low-income, settled men, especially in their relations with kin. An opposing perspective emphasizes the numerous relationships among homeless people, and the many functions these relations serve.

[3]Fathers of the mentally ill in the STAR sample had on average 2.5 years more of education than did other fathers (grade 11.5 versus grade 9), and this difference, in the general population roughly corresponds with an annual income of $18,500 rather than $14,000.

[4]Unfortunately, the quantitative data do not measure the occurrence of partnership formation.

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