



State Early Childhood Policy
Technical Assistance Network

Many Happy Returns:

Three Economic Models that Make
the Case for School Readiness

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Chapter One

INTRODUCTION AND OVERVIEW

Anyone who has been active in early childhood policy is familiar with the argument that for every dollar invested in quality early childhood programs, there is a return to society of much more than the original dollar invested. The potential for positive returns on investments in early childhood programs has led one Nobel laureate economist, James Heckman, to conclude: “Invest in the very young.”¹

Economic evaluations of early learning programs hold promise for enlisting new allies, particularly business leaders and economic development advocates, in supporting new early childhood investments. Economists and businesspeople commonly use cost-benefit analyses—tools that are being increasingly applied to evaluations of early childhood and other social programs—to evaluate the profitability of new investments.

One standard tool for assessing the relative value of a new investment is its return on investment (ROI), which is the amount of financial benefit divided by the amount of investment. The higher the ROI, the better the investment. Since benefits sometimes accrue over periods of time, ROI models discount the value of dollars earned later, rather than earlier, to account for inflation and alternative uses of the money that might be made. They may also calculate the rate of return, or the average annual return on the investment, to compare one investment option with another.² ROI or rate-of-return analyses are key tools private-sector investors use to make decisions about where to make their investments.

These tools have been applied rather sparingly, however, in assessing public investments. While in the

business world it is generally possible to assess investments in monetary terms of profit and loss, public investments generally have goals that are not directly measured monetarily, if they can be measured in that way at all. They include improved health status, greater personal and community safety, equity and fairness in treatment and service, and even the dignity that comes from living in a supportive environment.

Yet some desired impacts of public investments, particularly those related to economic growth and human capital development, can be measured in economic terms. Early childhood programs in particular can produce three different types of economic benefits, which are described briefly below and more extensively in Chapters Two through Four of this resource brief. When policy makers, advocates, and program directors evaluate programs through the lens of these economic returns, they can more confidently enlist support for programs, assess the relative value of different types of programmatic investments, and even redirect or invest identified savings into program expansion.

Returns Related to Child Growth and Development

The first and most studied economic benefit results from improved child health and development. The four seminal studies in this area evaluated the Elmira Prenatal/Early Infancy Project (PEIP), the Carolina Abecedarian Project, the High/Scope Perry Preschool Program, and the Chicago Child-Parent Centers. Each tracked costs and benefits related to the children’s (and, in the case of Elmira, the parents’) use of remediation or compensatory programs (special education, juvenile justice, child welfare, health and mental health services) and/or welfare benefits (AFDC/TANF, food stamps), as well as criminal

activity (corrections and victim costs). Some also tracked later earnings, both in terms of benefits to the individual and to society in increased taxes.

Each of the studies showed major, long-term benefits—with at least four dollars returned for every dollar invested. Statistics from these programs frequently have been cited by both policy makers and business leaders as a rationale for making new investments in early childhood. While these studies generally required long-term follow-up to establish the programs' full benefits, they already show the promise of substantial economic gains from early childhood interventions that improve child outcomes.

Returns Related to Economic Activity

A second, increasingly popular form of economic analysis assesses the economic impact of the early childhood industry (primarily child care) on society. Pioneered by Mildred Warner at Cornell University,³ this economic model estimates the contribution that the early care and education industry makes to local and state economies. First, it examines the size of the industry in economic terms and estimates the jobs it produces—both directly (through its own employees) and indirectly (through the multiplier effect of putting money into the economy, which produces other jobs). Second, it estimates the degree to which child care makes it possible for people to work in the first place, creating a larger overall employment base. A significant share of America's economic growth over the past three decades can be attributed to the expansion of the labor force due to mothers choosing to work outside the home.

Evaluations using this model have also begun to estimate the economic benefits that accrue from expanding the investments made in the early

childhood industry. When a state raises its child care subsidies, for instance, it produces job growth and economic activity. In addition, the state's net investment may be less than the actual appropriation, since the additional economic activity translates into increased tax revenue and decreased reliance on public services.

Returns Related to Adult Human Capital Development

A third potential economic return from investing in early childhood programs—adult human capital development—is only beginning to be explored. It has particular implications for poor neighborhoods, which tend to have much higher proportions of young children and single mothers than more affluent ones. They therefore require relatively more early childhood programs and services, which produce returns in both child health and development and neighborhood economic activity.

At the same time, when residents are trained to become early childhood providers, thus increasing their skills and receiving greater compensation than they otherwise would have been able to obtain, the programs produce a third type of return on investment—adult human capital development—in neighborhoods where it is most needed. In effect, investments in early childhood programs in these neighborhoods also serve as community-building investments.

Alternatively, establishing standards and enhancing provider compensation without creating effective avenues for neighborhood residents to meet those standards can have an adverse impact on community building. Such actions may inadvertently replace existing caregivers from the neighborhood with credentialed staff from outside the neighborhood,

depleting the neighborhood of an occupational base and neglecting an opportunity for enhancing local human capital development.

While the least developed, this third type of ROI analysis ultimately may be one of the most significant—certainly for the disproportionate numbers of young children and their families who reside in poor neighborhoods.

Combining the Three Returns

Results from any one of these types of economic analyses may be persuasive in making the case for early childhood investments. When the three are combined, however, as they logically deserve to be, they should be even more powerful.

The following three chapters discuss each of these types of analyses in more depth.

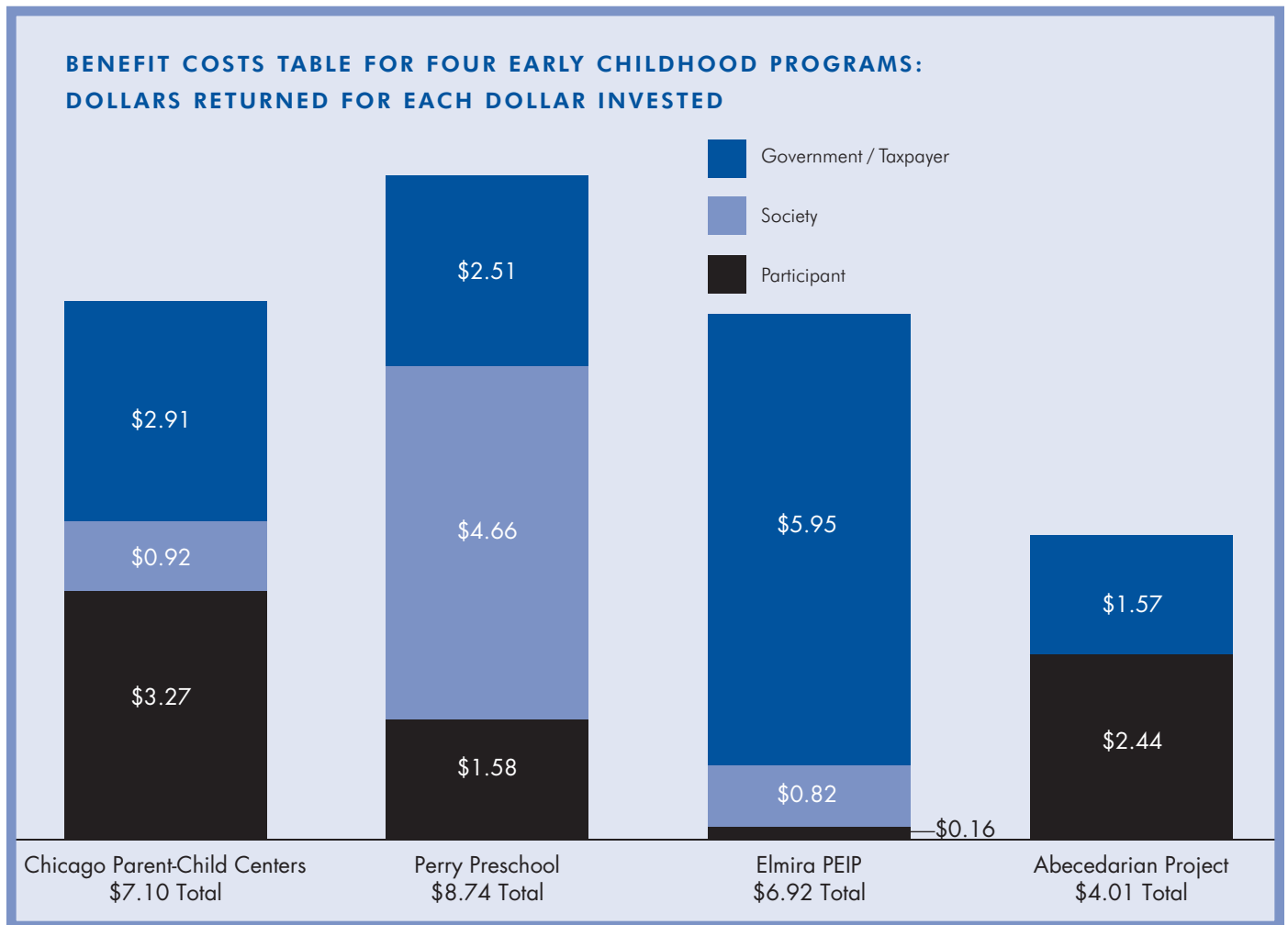
Chapter Two

RETURNS RELATED TO CHILD GROWTH AND DEVELOPMENT

Several exemplary early childhood programs have not only tracked their impacts on the children and families they served, but also have quantified these impacts in terms of their return on investment—to the individuals served (increased earnings), to society in general (reduced victimization), and to government and the taxpayer (reduced demand for public services and increased taxes as a result of higher earnings).

The four seminal studies that have quantified ROI related to child growth and development are: the Elmira Prenatal/Early Infancy Project (PEIP), the Carolina Abecedarian Project, the High/Scope Perry Preschool Program, and the Chicago Child-Parent Centers. The return-on-investment data for the most recent analyses of each of these programs are shown in the chart below. These studies and their findings are further described in Appendix One.

Although the four programs offered different types of early childhood services and were conducted across



different decades, all showed strong positive returns on investments. Because they all were carefully conducted and met rigorous research standards, these four studies have been those most used in analyses of the costs and benefits of early childhood interventions.⁴ With the exception of the Elmira study, however, the returns took years to realize; most of the benefits accrued only after participating children reached the age of adulthood.

Nobel laureate economist James Heckman used the Perry Preschool Program study, in particular, to contrast potential investments in human capital development, comparing early childhood investments with work and training programs for adult populations. His conclusion that the potential returns are much greater for investments in early childhood than in subsequent years prompted him to make the general recommendation, “Invest in the very young.”⁵

Art Rolnick and Rob Grunewald, working for the Minneapolis Federal Reserve Board, compared these studies to those of other public efforts to grow the economy. Their conclusion mirrored Heckman’s in asserting that investments in early learning, and in pre-school for disadvantaged students in particular, make more sense, from a return-on-investment perspective, than other forms of public investments more directly targeted to economic development.⁶ While there are only a few studies of early childhood programs with such established ROIs, these researchers concluded that they constituted a sufficient and comparable base for making claims of the value of early childhood investments compared with other possible investments of public funds.

The studies also have been persuasive in enlisting the support of prominent businesspeople and groups—

first, CEO of Proctor and Gamble Brad Butler and the Committee for Economic Development,⁷ and later Honeywell CEO Jim Ranier and the Success by 6 Initiative in Minneapolis. With substantial financial support from Bank of America, Success by 6 has become a national United Way initiative in more than 350 U.S. and Canadian cities.⁸

In general, the long-term nature of these returns has not made it possible to redeploy resources from areas of savings to make the actual investments, such as reducing spending on crime control to invest in early childhood programs. Ideally, however, public savings as a result of early childhood investments would be identified and captured so they could be used to reinvest in or increase the scale of the initial programs.⁹

Still, some recent evaluations of early childhood programs have shown substantial impacts even in the early years of school in reduced use of special education and lower rates of grade retention. The reduction in the use of special education, in particular, can be quantified in financial terms and used as an early marker for the success of established programs, as well as a potential source of savings for reinvestment.¹¹

Discussion

The results of these studies and their interpretation by scholars provide powerful arguments for investing in the early learning years. At the same time, they are based on exemplary and comprehensive programs; not any investment in the early years can be assumed to produce such returns.¹² The general value of such investments is recognized on both sides of the political aisle, as is need for ensuring quality.¹³ Any investment

strategy must either faithfully replicate a proven program model or incorporate outcome measures that can demonstrate whether the strategy produces measurable impacts on child or family development.¹⁴ While the studies provide the rationale for investment, they are not a substitute for accountability, results-based monitoring, and continuous learning,¹⁵ which must identify and track more immediate impacts than those realized in adulthood. These impacts should include children's health and developmental status prior to and throughout their participation in the program, as well as during their early elementary years.

It also may be possible to determine the savings in other funding areas—particularly special and compensatory education—from comprehensive early childhood efforts that reach large numbers of children. It may even be possible to reach agreements with these funding systems that enable any identified savings to partially or wholly be reinvested into the programs that produced them. While this is not likely to be sufficient to finance the overall early childhood system, it could be a key strategy to scaling up successful efforts.¹⁶

Chapter Three

RETURNS RELATED TO ECONOMIC EFFECTS

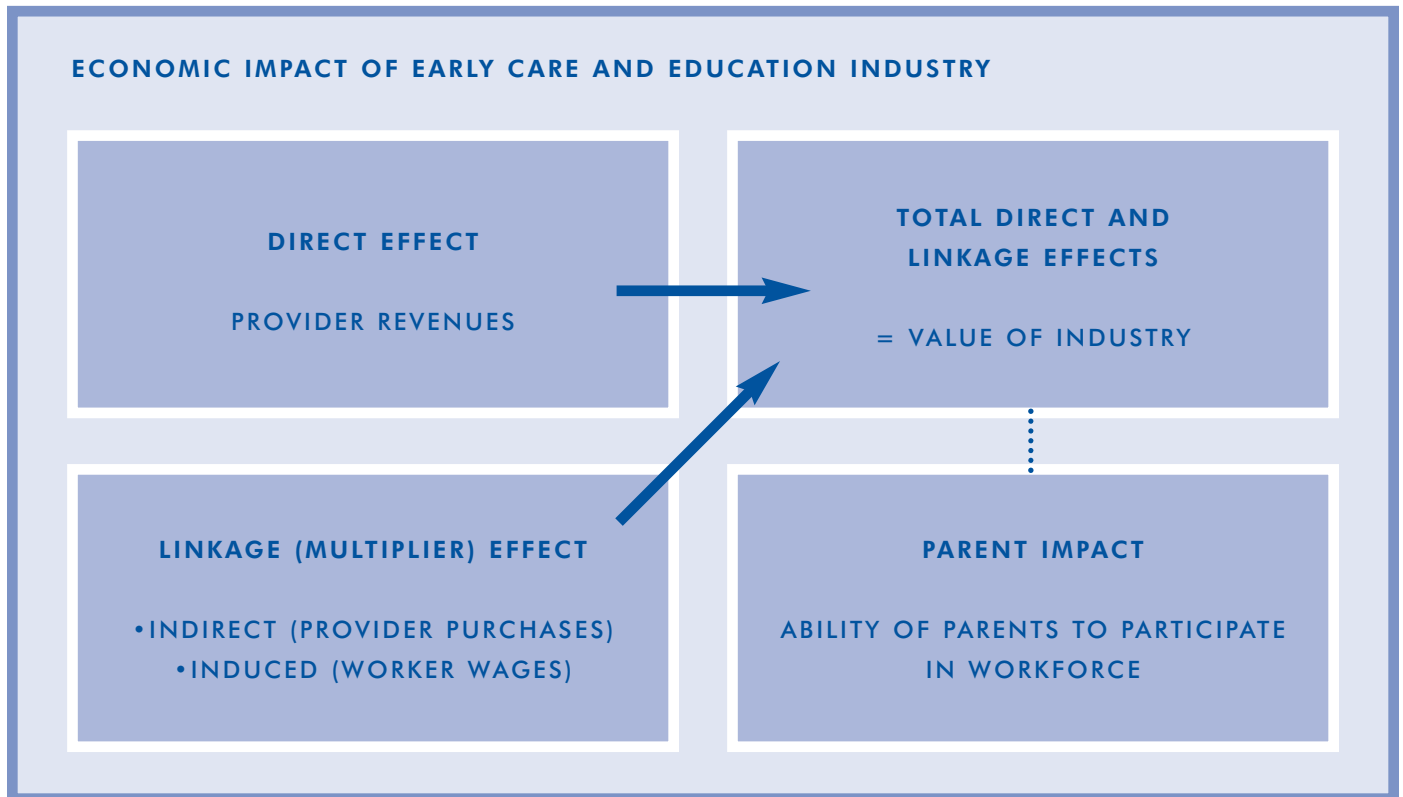
High-quality early childhood programs don't just impact children's development and future success. They also contribute to the economy in other ways.

Mildred Warner and her associates at Cornell University have developed a guide for measuring the regional economic importance of early care and education, based on her and others' work in various states and communities.¹⁷ These economic impact analyses have now been conducted by a number of states.

Like economic impact analyses of other industries, the economic impact analyses of early care and education programs examine both the industry's direct effect on the local economy (through the number of workers

employed and level of economic activity) and its linkage effect (through the multiplier effect of purchases of goods and services in the economy). Money expended on early care and education turns over in the economy through purchases of goods and services to operate the program and through purchases by employees from the wages they earn. Since early care and education programs and their workers typically purchase locally and do not save or invest a large share of their earnings, the multiplier effect for investments in early care and education is typically fairly large in relation to other local investments.

Economic impact analyses are frequently conducted for other forms of public spending, such as on construction programs or economic development activities. A road building project, for instance, often calculates how



many construction jobs it will create and presents itself as an economic development activity. Analyses for early care and education can make similar claims to those made by other public-investment industries.¹⁸ They also can take into account the role of early care and education programs in bringing those parents into the workforce who would be unable work without child care. The model for analyzing the economic impact of early care and education programs, which is shown on page 7, offers ways to estimate this “parental effect” of early care.

Generally, state economic impact analyses also contrast the size and contribution of the early care and education industry to other sectors of the economy, to show that early care and education deserves examination as an industry employing workers and contributing to the economy.

Rhode Island’s economic impact study is representative, and shows the economic impact of its child care industry on the state economy. The overall annual economic impact was estimated to be \$400 million, and the \$228 million in direct revenues was cited as being equivalent to the arts, entertainment, and recreation sector of the economy and half of that generated by the transportation and warehousing sector (see chart on the next page).¹⁹

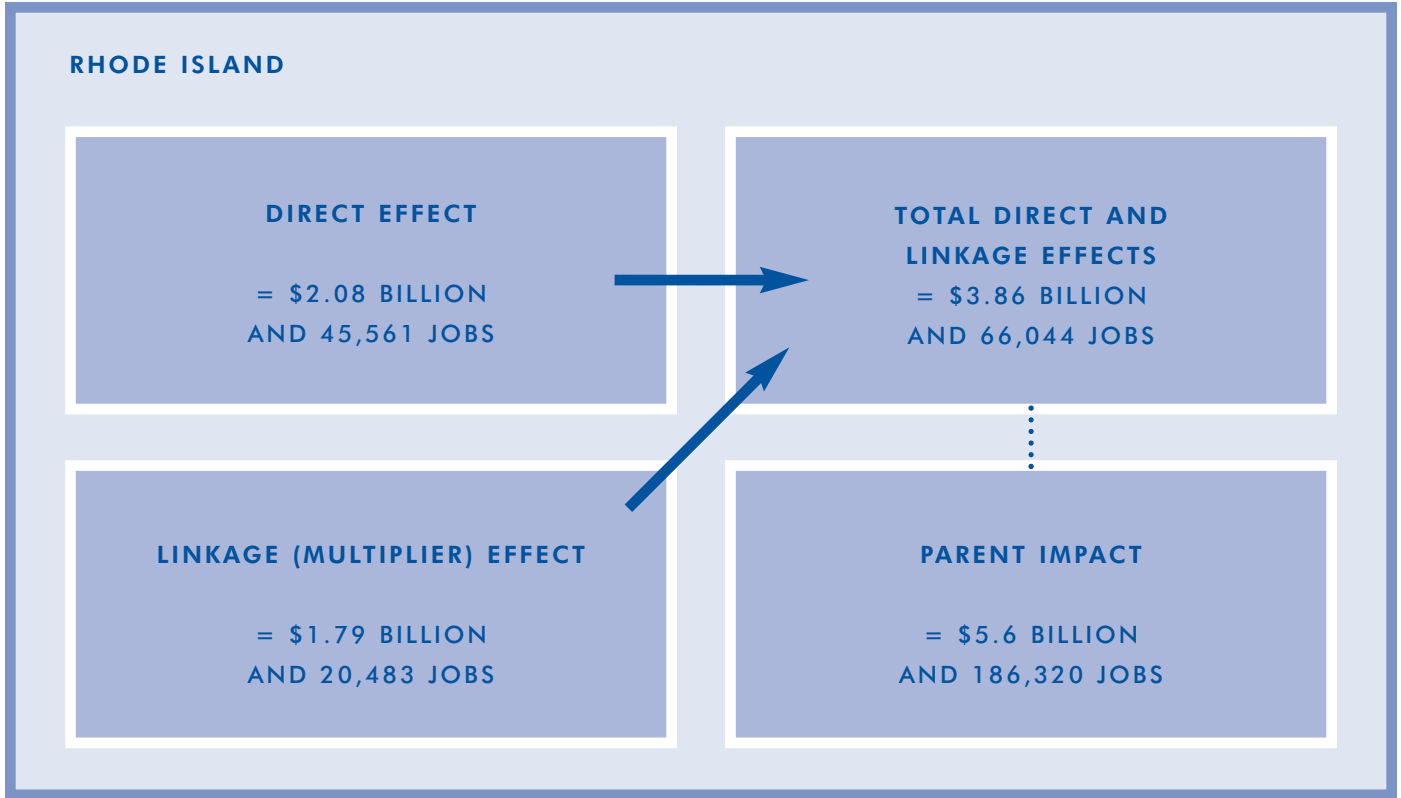
Of the \$228 million in care to licensed providers, Rhode Island’s subsidy program contributed \$66 million, resulting in direct and indirect effects of \$116 million to the economy and 2,792 jobs. Although not shown in the chart nor analyzed directly, some of this was returned to the government in the form of sales tax on purchased goods and taxes paid by salaried workers.

The Rhode Island chart also shows that the impact on parental employment may be even greater than the

impact of the industry itself. Clearly, one of the reasons for the growth in the American economy over the past 30 years has been the doubling of the percentage of mothers with children under age six working outside the home, from 30% of mothers in 1970 to 60% of mothers in 2000.²⁰ In many instances, this was made possible only by the development of child care alternatives. The Cornell guide provides methodological guidance on deriving an economic contribution figure for the total number of working parents served, but it does not estimate the number of residents who would not have been working were child care subsidies not available.

While most of the economic analyses of early care and education programs have been static analyses based on the current configuration of early care and education programs, studies also can be conducted to estimate job growth or loss and economic growth or loss as a result of state policies. A Kansas analysis, for instance, showed that the economic impact to Kansas from a proposed reduction to the child care subsidy eligibility level (from 185% to 150% of poverty) would result in a loss of \$3.3 million in federal subsidy dollars that would translate into a loss of \$6.5 million in state economic activity and 217 jobs.²¹ The Cornell guide provides methodological guidance in assessing the direct and linkage effects of such policy changes.

Appendix B provides information on seven state early care and education economic impact analyses (Florida, Kansas, Massachusetts, Minnesota, North Carolina, Rhode Island, and Texas). While there are variations across the states, there also are similarities. Early care and education economic effects range from .31% to .62% of the overall gross state product, and from .56% to 1.69% of the overall state employment base.



Discussion

Early care and education economic impact analyses represent another tool to use to assess the overall impacts of public investments in early care and education. The early care and education industry in most states has an economic base at least as large as many recognized economic sectors of the state economy, and often an even larger workforce (due to the low-wage nature of early care and education).

Clearly, the early care and education industry also enables parents to work and—when it provides quality, dependable care—supports their productivity and reduces their absenteeism. Economic impact analyses also can quantify these economic effects and bring their benefits to light.

An emerging line of work that holds promise involves examining the economic impact of proposed expansions to public early care and education funding. It also may be possible to calculate some direct offsets (in additional tax revenue) from these investments, to more fairly determine their net public costs.

Chapter Four

RETURNS RELATED TO ADULT HUMAN CAPITAL DEVELOPMENT

The research literature on the effects of early childhood programs on child health and development is clear: “Quality matters.”²² High-quality care improves child health and development, and low-quality care can actually cause harm. Further, the key to high-quality care is well-trained staff and caregivers.²³ Improved compensation of child care providers and opportunities for professional development for those providers are keys to improving the quality of staff and the quality of child care.²⁴

Research is also clear that the characteristics of caregiving for poor children and in poor neighborhoods are different than in more affluent

ones. Analysis of a 2002 national survey has shown that lower-income families (those living below 100% and 200% of the poverty line) rely much more on family, friend, and neighbor care and family home care than do more affluent families, who make more use of center-based care.²⁵ Even with the Head Start program, poor families are less likely to enroll their children in pre-school programs.²⁶

At the same time, poor and vulnerable neighborhoods are rich in young children. An analysis of the nation’s 65,000 census tracts based on their “child-raising vulnerability” indicated that 6.7% of the country’s population lives in the poorest and most vulnerable census tracts.²⁷ A disproportionately high number of these tracts are in the nation’s largest cities. As the chart below shows, compared to the nation as a whole, these census tracts have much higher

HUMAN CAPITAL IN POOR AND VULNERABLE CENSUS TRACTS IN AMERICA

	MOST VULNERABLE	ALL TRACTS (NATION)
% of Total Population Aged 0–4	9.1%	6.8%
% of Total Population Aged 5–17	32.8%	25.8%
Single Parenting Rate	53.1%	20.5%
Percentage Adults Over 25 Without High School Degrees	48.0%	13.5%
Worker-Age to Dependent Ratio (18–64 population : under 18 or over 65)	1.40 : 1	1.63 : 1

proportions of very young children (ages 0–4), higher rates of single parenting, and a less educated adult population. They also have fewer working-age adults (adults ages 18–64) to support the child and senior population, making it even more imperative that those adults have opportunities for productive employment.

These data have the following implications for early childhood and school readiness strategies in poor census tracts and neighborhoods:

- School readiness strategies are important within these poor neighborhoods, based on the numbers of children of pre-school age alone.
- Early care and education programs and services are particularly necessary, in order to enable families to be in the workforce and not on public assistance, an issue made more pressing by the policy changes established by welfare reform.
- Early care and education programs and services currently constitute a larger base of economic support for these neighborhoods, although the qualifications of the caregiver staff are likely to be at a less professional level.
- If the current caregiver workforce can increase its skills and capacity to provide developmentally appropriate care through additional training and compensation, the benefits can include improved school readiness of children, improved adult workforce development and skills, and more economic and social capital in the community.
- If efforts to improve caregiving result in credentialed staff being imported from outside the neighborhood, there may be gains in children's school readiness but will also likely be losses of community economic, social, and human capital and disparities of culture and language between caregivers and the children and families for whom they care.

In essence, the potential returns from investing in early childhood and school readiness strategies in poor neighborhoods include the first two ROIs of improved child development and success and increased economic activity, as well as a third return of increased skills, compensation, and career opportunities among the adults who provide early childhood care and services.²⁸

The impact of this last return on investment has been the least explored of the three returns discussed here, yet it is the one to which policy makers should pay particular attention. Lessons learned from the Early Childhood Initiative in Allegheny County's poorest neighborhoods, for example, showed that, without conscious and concerted efforts to build an indigenous workforce, it is difficult to fully implement any early childhood strategies. It is essential to recognize the current status of the early childhood system within such poor neighborhoods—including the current skills of the caregiver workforce and the physical limitations to providing safe, developmentally appropriate environments (such as play and recreational areas) for care.²⁹

At the same time, investments in building this base can have high rates of return for the local economy. These investments can contribute to community building, both through new or improved jobs in economically distressed neighborhoods and new leaders and anchors of support in the community.³⁰ The early childhood worker who has additional training, skills, and compensation and who lives within the neighborhood often contributes substantially to the community's social capital—which is recognized as a key element of community building.³¹

Programs around the country are beginning to test the promise of this strategy. New Jersey has made explicit efforts to build a credentialed workforce for enriched pre-school programs in its poorest neighborhoods (the result of the state supreme court's *Abbott v. Burke* decision requiring such investments) by supporting existing indigenous caregiver communities.³² Sparking Connections, a multi-site initiative supported by several foundations and administered by the Women and Work Institute, is working to enhance the capacity of family, friend, and neighbor care through a variety of innovative supports—recognizing that this care forms a base of support in many communities, particularly disadvantaged ones.³³ The Annie E. Casey Foundation's Making Connections initiative has focused on school readiness as a major goal, and its 10 urban sites are working to develop school readiness strategies that serve the dual role of improving child development and building community.³⁴

As these and other initiatives develop, this third type of return on investments in early childhood programming deserves to be more fully examined and measured. Within poor neighborhoods, it may prove to be essential to developing strategies that not only achieve child development results but also create greater family and community economic security.

Chapter Five

FINAL THOUGHTS

Investments should not be made solely on the basis of their economic returns to society. If that were the case, there would be little reason to support health care for those in their last years of life or to support services to those with disabilities that make them unlikely to enter the workforce themselves. Such quality-of-life issues represent important public concerns that cannot be quantified in monetary terms. Ensuring that children can engage in play and explore the world in safe, supportive environments is a valuable end in itself, not simply a means to future economic productivity.

Yet service providers and child advocates increasingly have been called upon to justify their programs and demonstrate results. In particular, the movement to be accountable to outcomes has placed services to poor children and families under a new level of scrutiny; these are the programs whose effectiveness has most often been challenged.³⁵ To counter such challenges, those concerned with children's services and child development need to be able to use the ROI tools described above. Fortunately, early childhood and school readiness advocates have much to build on in doing so.

It is clear that society has not invested in the earliest learning years to the same degree it has invested in the school-aged years, despite brain research and child development suggesting the importance of such investments. A recent 12-state study showed that for every dollar invested per child on education and development in the school-aged years, only 13.7 cents was invested in education and development in the early learning years.³⁶ It also is clear that there is sufficient knowledge of effective early learning programs and strategies to make much greater

investments than are currently being made—and that these investments are on much sounder ground than many other public investments in economic development claiming strong economic returns.³⁷

Economic arguments and analyses represent only one tool, but a key tool, in making the case for public investments in early childhood. Advocates should not shy away from them. Marion Wright Edelman, founder of the Children's Defense Fund and one of the country's most respected child advocates, has summed it up succinctly yet powerfully: "Covering children should be a major priority, not only because it is a moral imperative, but because it is also a financial imperative."³⁸

Endnotes

1. Heckman, J. J. (2000). *Fostering human capital: Invest in the very young*. Chicago, IL: Ounce of Prevention Fund, Irving B. Harris Graduate School of Public Policy Studies.
2. A good description of the rate-of-return analysis, applied to early childhood investments, is found in Klein, L. (Summer 2004). A conversation with Art Rolnick. *The Evaluation Exchange*, X(2), 16-17.
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9. Conservation Company and Juvenile Law Center. (1994). *Building bridges: Strategic planning and alternative financing for system reform*. Philadelphia: Author; Bruner, C., with Scott, S. (1994). *Investment-based budgeting: The principles in converting from a remediation/response to a prevention/investment budget*. [Occasional Paper 11]. Des Moines, IA: Child and Family Policy Center.
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11. Special education savings played only a small role in the four seminal return-on-investment studies, in part because special education spending was much smaller during the time in which those studies were conducted.
12. For a fuller discussion, see Bruner, C. (2002). *A stitch in time: Calculating the costs of school unreadiness*. Washington, DC: The Finance Project.
13. Such a conversation is provided in Zigler, E., Haskins, R., & Lyon, G.R. (Summer 2004). Ask the expert. Closing the achievement gap: Head Start and beyond. *The Evaluation Exchange*, X(2), 9.
14. See Greenberg, M. (2002). Research-based programs and issues of implementation. In Bruner, C., Greenberg, M., Guy, C., Little, M., Schorr, L., Weiss, H, et. al., *Funding what works: Exploring the role of research on effective programs and practices in government decision-making* (pp. 7–18). Des Moines, IA: National Center for Service Integration Clearinghouse and Center for Schools and Communities.
15. See Weiss, H. (2002). Making progress: Learning and public accountability. In Bruner, C., Greenberg, M., Guy, C., Little, M., Schorr, L., Weiss, H, et. al. (2002). *Funding what works: Exploring the role of research on effective programs and practices in government decision-making* (pp. 23–30). Des Moines, IA: National Center for Service Integration Clearinghouse and Center for Schools and Communities.
16. Bruner, C., with Scott, S. (1994). *Investment-based budgeting: The principles in converting from a remediation/response to a prevention/investment budget*. [Occasional Paper 11]. Des Moines, IA: Child and Family Policy Center.
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18. In both instances, however, the job creation effects of public spending must be contrasted with the job creation effects of other uses of those funds. The economic development difference between spending the funds to build roads or to create early care and education slots will relate in large measure to the difference in their economic multiplier effects. If the public spending were instead used to cut taxes, that would leave taxpayers with more money, which they might spend locally to produce economic activity and jobs. Tax cuts sometimes often are promoted as ways to increase economic activity. Claims regarding job creation or economic development from public spending must be examined in this context.
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23. Ackerman, D.J. (2003). *States' efforts in improving the qualifications of early care and education teachers*. [Working Paper]. New Brunswick, NJ: National Institute for Early Education Research, Rutgers University Graduate School of Education.
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28. This return could also be said to apply more generally. To the extent that school readiness efforts invest in professional development and provide new career opportunities through higher-paid, credentialed pre-school instruction positions, they are engaging in adult human capital development. At the same time, this may simply attract people into a profession who would have otherwise selected other career paths, changing the character of their professional development but not their overall likelihood of developing that professionalism. In poor neighborhoods, however, the existing caregiving workforce is much less able or likely to select other career paths that would develop their skills and compensation. The adult human capital return on investing in strategies to raise skills and compensation for an indigenous workforce within poor neighborhoods is much greater than in more affluent ones.
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APPENDIX A

Investments and Returns of Four Longitudinal Early Childhood Programs

Program	Description	Investment per Child (2002 real \$)	Return on Investment
<p>Chicago Child-Parent Centers</p>	<p>The Chicago Child-Parent Centers involved low-income 3-year-old children (93% African American and 7% Hispanic) from 1983 to 1986. The main interventions were a pre-school program, full-day kindergarten, family support services, and a school-aged program extending to the early elementary grades. The average length of time spent in the pre-school program was 1.55 years. Children have been followed to age 20, with a non-experimental comparison group of children who only received full-day kindergarten.</p>	<p>\$7,428 per participant for 1.5 years in the pre-school program.</p> <p>All aspects of the program yielded positive cost benefits to society, but the pre-school program showed the highest rate of return (its cost benefits are shown here).</p>	<p>\$52,711 per participant</p> <p>\$ 7.10 saved for every \$1 invested:</p> <hr/> <p>\$ 3.27 increased net earnings for participant \$.92 reduced crime victim expenses \$ 2.91 savings to taxpayers and government: \$ 1.07 increased tax revenues \$ 1.07 reduced criminal justice costs \$.69 reduced remedial education costs \$.07 other savings</p> <p>Dividend discount rate employed = 3%</p>
<p>High/Scope Perry Preschool Project</p>	<p>The High/Scope Perry Preschool Project included 3- and 4-year-old low-income African American children with measured borderline mentally retarded IQs in Ypsilanti, Michigan, from 1962 to 1964. The interventions involved a two-and-a-half-hour pre-school program, five days a week for nine months a year, along with weekly home visits from the pre-school teachers for one-and-a-half hours each. Children have been followed to age 27. The program incorporated an experimental design, with children randomly assigned to treatment and control groups.</p>	<p>\$15,895 per participant for one year.</p> <p>Most participants attended for two years, but the cost benefits are based on one year of participation.</p>	<p>\$138,486 per participant</p> <p>\$ 8.74 saved for every \$1 invested:</p> <hr/> <p>\$ 1.58 increased net earnings for participant \$ 4.66 reduced crime victim expenses \$ 2.51 savings to taxpayers and government: \$.72 increased tax revenues \$ 1.04 reduced criminal justice costs \$.51 reduced education costs (remedial and adult, less increased college costs) \$.24 reduced welfare payments and benefits</p> <p>Dividend discount rate employed = 3%</p>

Program	Description	Investment per Child (2002 real \$)	Return on Investment
Elmira Prenatal/ Early Infancy Project (PEIP)	PEIP involved primarily non-minority first-time mothers and their children from Elmira, New York, in 1972. The women entered the study prior to their 30th week of pregnancy. The main intervention was a home visiting program conducted by registered nurses, who provided parent education, social support, and referral to social services. The program continued until children were age 2. It incorporated an experimental design, with families randomly assigned to treatment and control groups. The analysis broke out findings by higher- and lower-risk participants, based on education and income status. These children have been followed to age 15.	\$7,109 per participant for period from prenatal to age 2. Cost benefits are shown both for higher- and lower-risk parents.	Higher risk group: \$49,217 per participant \$6.92 saved for every \$1 invested: \$.16 increased net earnings for participant \$.82 reduced crime victim expenses \$5.95 savings to taxpayers and government: \$ 1.26 increased tax revenues \$ 1.55 reduced criminal justice costs \$ 3.12 reduced welfare payments \$.02 reduced emergency room visit costs Lower risk group: \$10,165 per participant \$1.43 for every \$1 invested: \$.26 increased net earnings for participant \$.21 reduced crime victim expenses \$.96 savings to taxpayers and government \$.25 increased tax revenues \$.41 reduced criminal justice costs \$.28 reduced welfare payments \$.02 reduced emergency room visit costs Dividend discount rate employed = 4%
Abecedarian Early Childhood Intervention	The Abecedarian Intervention involved children deemed at risk of intellectual and social development, based largely upon parental risk factors (education, IQ, and SES), in North Carolina in 1972. The majority of children were African American. The main intervention was intensive, full-time preschool services from infancy to five years of age. The program incorporated an experimental design, with families randomly assigned to treatment and control group. The children have been followed to age 21.	\$35,864 in marginal program cost at the Frank Graham Child Development Center for entire program involvement. Marginal cost is based upon annual marginal cost of \$7565 per year, with the program costing \$13,900 but parents in the control group already expending \$6,435 for child care) Costs were determined to be higher if replicated in a public school setting, at \$41,916	\$ 143,674 per participant \$ 4.01 for every \$1 invested*: \$2.44 increased net earnings for participant (75% of earnings gain) \$1.57 savings to taxpayers and government \$.81 increased tax revenues (25% of earnings gain) \$.01 reduced welfare payments \$.25 reduced special education / K-12 costs \$.50 reduced smoking-related and other health care costs *not included: \$.23 higher education cost per participation Dividend discount rate employed = 3%

Notes

As much as possible, this table was constructed from the original studies themselves by simply updating the tables to reflect inflation between the study reports and 2002. All costs and benefits are inflation-adjusted and based on 2002 dollars. The Abecedarian report did not break out increased revenue by benefits to participant vs. benefit to taxpayer. The 25%–75% breakdown, based in part on other studies, corresponds to the employee's share of social security and federal and state taxes.

Studies are not strictly comparable for a number of reasons. First, the dividend discount rate is shown for each analysis, and even a difference of 1% has a significant impact on overall return rates. Second, different studies compiled data for different outcomes that could be translated to different cost savings (e.g., Abecedarian was the only study that identified major health savings by looking at smoking rates of participants, but Abecedarian did not have data in other areas). None had data that would enable a full examination of potential cost benefits, and many had small sample sizes that would only identify as statistically significant effects those that were very pronounced.

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APPENDIX B

Economic Impact Analyses of the Child Care / Early Childhood Industry: Recent State Studies

	Florida	Kansas	Mass	Minnesota	N.C.	Rhode Is.	Texas
Study Base Year	2000	2002	2003	2003	2001	2002	2002
Gross State Product (Billions 2001)	\$491.5	\$87.1	\$287.8	\$188.1	\$275.6	\$36.9	\$763.9
State Civilian Employment (2003)	8,148,300	1,431,100	3,186,300	2,651,300	3,898,700	574,300	9,422,900
Direct \$ Effect of ECE (Millions)	\$2,080	\$517	\$1,455	\$962	\$1,500	\$228	\$2,338
Direct Job Effect of ECE	45,561	14,370	29,555	28,050	46,358	7,417	109,000
Linkage \$ Effect of ECE (Millions)	\$1,792	\$1,024	\$1,255	NA	\$1,140	\$172	\$1,749
Linkage Job Effect of ECE	20,483	2,274	13,002	16,977	13,336	2,209	35,970
Parental \$ Impact of ECE (Millions)	\$5,600	\$1,980	NA	NA	NA	\$627	\$5,581
Parental Job Impact of ECE	186,320	NA	NA	NA	NA	32,167	14,500
Direct \$ Effect as % GSP	0.42%	0.59%	0.51%	0.51%	0.54%	0.62%	0.31%
Direct Job Effect as % Civilian Empl.	0.56%	1.00%	0.93%	1.06%	1.19%	1.29%	1.16%
Direct + Linkage \$ Effect as % GSP	0.79%	1.77%	0.94%	NA	0.96%	1.08%	0.54%
Direct + Linkage Job Effect as % Civilian Empl.	0.81%	1.16%	1.34%	1.70%	1.53%	1.68%	1.54%
Direct/Linkage/Parent \$ Effect as % GSP	1.93%	4.04%	NA	NA	NA	2.78%	1.27%
Direct/Linkage/Parent Job Effect as % Civilian Empl.	3.10%	1.16%	NA	NA	NA	7.28%	1.69%

NA—Figure not available

Note

The studies for Massachusetts, Minnesota, and North Carolina do not include the linkage effects in the body of their documents, but only in Appendix B of each report, noting that “many informed observers have indicated that these effects are not part of a conservative approach” to calculating economic impact. They do not include parental impact analyses at all.

Comparison Industries Noted in Different States

Florida: In terms of size of business, the child care industry is larger than the advertising, residential care, commercial printing, and local interurban passenger travel industries. It employs more workers than colleges and universities and than elementary and secondary schools.

Kansas: Child care services employ more workers than apparel and accessory stores, hotels and lodging places, and the feed grain and food grain industries.

Massachusetts: The child care and early education industry has gross receipts on a par with data processing, pharmaceutical manufacturing, and research and development in the life sciences. There are more full-time equivalent (FTE) employees in child care and early education than in telecommunications and computer manufacturing, and three times more than in pharmaceutical manufacturing.

Minnesota: The child care industry (family and center care) is larger than the following industries: cattle and calves, business support services, wireless telecommunications, plumbing and heating equipment, and men's and women's clothing stores. In terms of employment, the child care industry is equivalent to building construction and traveler accommodations and larger than elementary school teachers, legal services, business services, and health insurance.

North Carolina: In terms of gross receipts, the child care industry is comparable in size to the whole-leaf tobacco industry, larger than the scientific research and development services industry, and more than three times the size of the wireless telecommunications and poultry industries. Child care employs more people than public elementary school teachers, computer and electronic product manufacturing, accommodations, and telecommunications.

Texas: Child care is the 16th-largest industry in Texas and is projected to be the 11th-fastest-growing industry sector through 2010. It is the size of real estate and slightly larger than telecommunications, hotels/motels, and transportation equipment manufacturing. Between 1990 and 2003, it added 44,500 jobs to the economy, growing by 38%.

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About SECPTAN

The State Early Childhood Policy Technical Assistance Network (SECPTAN) provides current information about early childhood policy initiatives to state policy makers. It assists them in assessing the best available evidence and information about effective policies and practices in early childhood. The network is managed by the Child and Family Policy Center with funding from the Ford Foundation, the Ewing Marion Kauffman Foundation, and the David and Lucile Packard Foundation. For more information about SECPTAN, visit www.finebynine.org or contact Charles Bruner, Network Director, at 515-280-9027.

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The Child and Family Policy Center (CFPC) was established in 1989 by former Iowa legislator Charles Bruner, Ph.D., to better link research and policy on issues vital to children and families, and to advocate for outcome-based policies to improve child well-being. CFPC is active both statewide and nationally. In Iowa, the Child and Family Policy Center assists the state and communities in developing integrated, community-based, family-focused, and results-accountable services, particularly for vulnerable children. CFPC also produces a variety of reports, case studies, concept papers, and technical assistance tools on systems reform and community building that are widely used across the United States.



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