

EARLY CHILDHOOD EDUCATION AS AN ESSENTIAL COMPONENT OF ECONOMIC DEVELOPMENT

WITH REFERENCE TO THE
NEW ENGLAND STATES

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“From birth to age 5, children rapidly develop foundational capabilities on which subsequent development builds. In addition to their remarkable linguistic and cognitive gains, they exhibit dramatic progress in their emotional, social, regulatory, and moral capacities. All of these critical dimensions of early development are intertwined, and each requires focused attention.”

Committee on Integrating the Science of Early Childhood Development,
*From Neurons to Neighborhoods: The Science of Early Childhood
Development*¹

“The most valuable lesson advocates for preschool education can take away from the early intervention studies is not to oversell the potential benefits.”

Edward Zigler, “A Warning Against Exaggerating the Benefits of Preschool Education Programs”²

“... there are some policies that both are fair—i.e., promote equity—and promote economic efficiency. Investing in the early years of disadvantaged children’s lives is one such policy.”

“Parents need help and their children will suffer if they don’t get it. Society will pay the price in higher social costs and declining economic fortunes.”

James J. Heckman, “The Economics of Inequality: The Value of Early Childhood Education”³

“All other infrastructure sectors in our economy receive significant public support because we recognize that the private sector alone cannot bear the cost of a quality infrastructure. Public goods require public investment. All of society benefits from quality child care, but parents still bear the majority of the costs. By recognizing the importance of child care as a part of economic recovery, we can now push to have child care included as a priority investment in future infrastructure and economic development programs. Our economy depends on it.”

Mildred E. Warner, “Recession, Stimulus and the Child Care Sector:
Understanding Economic Dynamics, Calculating Impact”⁴

“Even though child care quality was associated with cognitive and language development, the link was not a strong one. Family and parent features were more important predictors of this development than child care quality. So, the differences between outcomes for children in higher and lower quality care were small relative to the differences associated with family characteristics.”

The NICHD Study of Early Child Care and Youth Development: Findings for Children up to Age 4½ Years⁵

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SUMMARY

It is well established that the experiences of children in their early years, before they enter kindergarten, are very important in affecting their long-term cognitive and social development. Children's development, in turn, affects not only their personal well-being but also their capacity to contribute to the well-being of society in general.

Less well recognized, however, is that society's investments in early childhood education can be an essential component in economic development. The economic development impact of K-12 and higher education is widely acknowledged, but the role of early childhood education is often given insufficient attention.

At the basis of the role of early childhood education as an essential component of economic development lie two necessities: child care for children whose parents are in the paid labor force, and the increasing importance of well-developed cognitive and social/behavioral skills in the work force. Taken together, these necessities demands that high quality early childhood education is universally available.

Beyond its direct role in economic development, early childhood education is important as a tool to move toward greater social equity. The evidence strongly indicates that children from low-income families benefit substantially, both cognitively and socially/behaviorally, from high quality early childhood education, thus helping to close the achievement and opportunity gap between income groups.

While the goal of universal availability of early childhood education is often recognized, in the United States less than half of three- and four-year-olds were enrolled in preschool programs in the 2008-2010 period. Enrollment in the New England states varies widely, with 62% of three- and four-year-olds enrolled in Connecticut in this period, but only 42% in Maine.

This report argues that it is highly desirable and valuable to society for state governments to support universal early childhood education. In doing so, governments will be putting in place an essential component of economic development, a component that will provide both a long-run foundation for their states' economic development and an immediate boost to their states' economic progress. Moreover, they will be providing an important service to families and strengthening equality of opportunity.

WHAT ARE THE COGNITIVE, SOCIAL/BEHAVIORAL, AND ECONOMIC GAINS FROM EARLY CHILDHOOD EDUCATION PROGRAMS?

When more is spent on early childhood education, the returns to society (and to the children) per dollar spent are higher.

In general, studies show a high rate of return from high quality early childhood education, both to the participants and the public. Indeed, measured simply in terms of their impact on a state government’s budget, the returns on this investment may outweigh the expenditures—and, additionally, there are returns to the individual children, their families, and society at large.

Economic gains are reflected in the higher salaries that the children earn later in life, the greater economic contribution to society that these salaries tend to reflect, and the higher resulting tax payments. There are also impacts that yield fiscal savings for the government: lower incidences of grade retention and special education; elevated high school graduation rates and college-attendance rates; reduced reliance on social support programs; and less engagement with the criminal justice system.

Four studies in particular shed light on the details of these issues. Two—of the Perry Street Preschool Project, and the Carolina Abecedarian Project—were of small-scale pilot programs that provided high quality care. Two larger studies—the National Institute of Child Health and Human Development study and an impact study of Head Start programs—looked at a much broader range of programs. A few key findings emerge across the studies:

- High quality programs make substantial contributions to the lives of young children and yield high returns to society’s investment in them.
- However great the need is for widely available child care, providing “adequate” care is unlikely to yield the strong gains generated by high quality care.
- When high quality care cannot be provided, adequate care can still be important in supporting the child care needs of families.
- When more is spent on early childhood education, the returns to society (and to the children) per dollar spent are higher.
- These programs can be important in improving the lives of children, but their accomplishments will be constrained by the quality of the programs themselves, by the larger environment, and by the quality of the schools that the children attend after their early childhood experiences.
- Early childhood education programs can be a good place to start to improve the lives of children, but they are only one part of a larger effort.

HOW DO STATE GOVERNMENT EXPENDITURES ON EARLY CHILDHOOD EDUCATION AFFECT THE ECONOMY?

Along with personal and long-term benefits, early child education programs yield two types of short-term impacts: the expansion of output and incomes as more parents are able to enter the paid labor force; and the increased productivity of parents in the paid labor force when their children are in high quality programs.

Numerous studies have documented the impact of child care availability on parents'—virtually always mothers'—labor force participation rates. However, these do not tell us the impact that *universally available* low-cost child care would have, simply because experience with such programs in the United States is very limited. However, a study of a low-cost, universal child care program in the Province of Quebec found "... the effect of the policy to be 7.6 percentage points for labor force participation. Since the participation rate in Québec for 2002 is 69%, we estimate that it would have been 61.4% without the policy. Hence the policy increased participation by 12.3%..." (see main text, note 40).



- Along with increased labor force participation, for many families, especially low-income families, a universal early education program could allow them to switch from lower quality child care arrangements (including care by relatives) to higher-quality facilities supported in the universal program.

- For parents of young children who are in the labor force, access to high quality programs for their children will raise their productivity. With the reliability that comes with quality child care, parents will be less frequently absent from work. Further, with the knowledge that their children are in high quality programs, parents will be under less stress, and consequently will be more productive. They may be more satisfied with their employment because they will not—or will less frequently and intensely—harbor the feeling that their jobs are in conflict with the well-being of their children.

In addition, it has been suggested that investments in child care can stimulate demand in the economy. While funds coming from *outside* the state may have this effect, the demand stimulus of *state government funds* would be largely if not entirely offset by either reductions in spending in other areas or increases in taxes.

SHOULD THE STATE PROVIDE UNIVERSAL FREE EARLY CHILDHOOD EDUCATION OR TARGET LOW-INCOME FAMILIES?

There is debate over whether the benefits of publicly-funded early childhood education can best be maximized through universal programs, or by targeting programs towards low-income families. The evidence, along with fundamental egalitarian values, indicates that the arguments for universal programs heavily outweigh those for targeted programs:

- While children from low-income families gain the most from early childhood education, their gain is greatest in programs that are diverse in terms of the income levels of the children's families.
- There is no reasonable basis on which to justify treating younger children (four-year-olds) differently than older children (six- and seven-year-olds) by offering universal free public schooling to one group and not the other.

- The cost of child care is a severe burden on moderate-income families as well as low-income families. At the median income of single-mother families in New England, cost ranges from 33.2% of income (New Hampshire) to 44.8% (Massachusetts), more than the typical cost of housing. Similarly, for three-person families (e.g., two parents and a child) with income at twice the poverty level, costs range from 21.3% of income (Maine) to 31.5% (Massachusetts).
- Social welfare programs targeted at low-income families—that is, means-tested programs—raise two severe problems: a disincentive for families to raise their incomes and the generation of resentment and social division.
- Experience with K-12 schools suggests that educational programs that are for children of families with low-incomes—precisely those children for whom high quality programs appear to make the most difference—are less likely to be high quality, and thus are less likely to contribute to economic and social equity.
- Universal early childhood education programs are more likely to have firmer political support than programs targeted at the children of low-income families.

Given political and fiscal realities, however, it would be very difficult to establish quickly large-scale programs—universal or otherwise—of uniformly high quality throughout their operations. A practical approach to this potential trade-off between quality and widespread availability would be to develop a universal program in stages, recognizing that in its early stages, at least, it would not meet the standard of “high quality” for all its component centers. The goals should be to provide adequate centers in which parents can be assured that their children are being well-cared for, even if the children are not receiving “high quality” education; to learn from the “experiment” of implementation at the early stages; and to establish, at every step of the way, policies that will continually raise the quality of the program.

CONCLUDING COMMENTS

Support for these programs is good social policy as well as good economic policy.

• While this report focuses on the role of early childhood education in economic development, economic issues are only part of the story. Support for these programs is good social policy as well as good economic policy. Of greatest significance, high quality early childhood education can enhance the whole lives of children.

• These programs can also contribute to an enhancement of equal opportunity. Children from low-income families tend to gain the most from high quality, universal programs, potentially reducing education gaps between them and children from higher-income families. The universal provision of high quality early childhood education will not solve all of society’s economic and social problems. But early childhood education can be a very important element, making significant contributions to economic development as well as to general social well-being.

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INTRODUCTION

It is well established that the experiences of children in their early years, before they enter kindergarten, are very important in affecting their long-term cognitive and social development.⁶ Children’s development, in turn, affects not only their personal well-being but also their capacity to contribute to the well-being of society in general.

Less well recognized, however, is that society’s investments in early childhood education can be an essential component in economic development—providing an important foundation for society’s economic well-being over the long run and also making more immediate contributions to economic expansion.⁷ Like state government expenditures on the physical foundations of economic activity (roads, bridges, sewers), expenditures on the social foundations of economic activity—education in particular—shape the course of the economy long into the future. The economic development impact of education is widely acknowledged for K-12 schooling and for higher education, but the economic development role of early childhood education is often given insufficient attention.

Much of the rationale for providing public support for early childhood education is the same as the rationale for providing support for K-12 and higher education. Until fairly recently in our history, however, state support in the early years was viewed as unnecessary and often as undesirable. Early childhood education—especially education under the broad rubric of “socialization”—was viewed as the responsibility of parents, not of society at large. Regardless of the validity of this view in earlier times, it is no longer a practical basis for early childhood education for at least the following reasons:

- Most parents of young children work in the paid labor force. As shown in Table 1, in 2010, 64.6% of children under six in the United States had all of their parents in the paid labor force. For the New England states, the figures were higher—ranging from 67.2% in Connecticut to 71.6% in Rhode Island. Even most

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parents with very young children are in the paid labor force. In 2010, 61.1% of women in the country with children under three were in the paid labor force; the corresponding figure for men was 94.9%.³ Some form of early childhood education—at least adequate care—is thus a necessity for most families. Moreover, it seems reasonable to assume that these figures would have been higher had more parents had access to what they considered adequate child care arrangements.

- Increasingly, for economic success people need a high level of formal education. In part, this increase is due to the higher level of cognitive skills needed for well-paying, stable jobs today as compared to earlier times. In addition, the social/behavioral skills developed in school are increasingly valued. Early childhood education is—or can be—an important component of formal education.

Table 1: Percent of children under six years old with all parents in the labor force, 2010, New England states and the United States

Connecticut	67.2%	New Hampshire	71.3%
Maine	70.0%	Rhode Island	71.6%
Massachusetts	69.1%	Vermont	67.4%
United States*			64.6%

*Includes Puerto Rico, which, with a 58.9% rate, slightly lowers the average.

Source: U.S. Census Bureau, American Community Survey, American Fact Finder, <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>

The necessity of child care for children whose parents are in the paid labor force and the increasing importance of well-developed cognitive and social/behavioral skills in the workforce lie at the basis of the role of early childhood education as an essential component of economic development. Taken together, this reality demands that high quality early childhood education is universally available.*

Beyond its direct role in economic development, early childhood education is important for economic fairness—that is, for equal opportunity.† There is considerable evidence that the early educational experiences of children vary a great deal with families’ economic circumstances—that is, children from low-income families tend to enter K-12 schooling with significant educational disadvantages as compared to children from higher income families. If society values the principle of

* Of course, these considerations do not mean that early childhood education should be compulsory. The age at which society should and could make schooling compulsory is a separate issue.

† Programs that enhance economic opportunity have become all the more important in recent decades as social mobility in the United States has declined. See the reference in note 63 below to the article by Aaronson and Mazumder for evidence and analysis of the decline in social mobility.

equal opportunity, it is then essential to provide children from low-income families with high quality educational experiences in their early years. Indeed, the evidence strongly indicates that children from low-income families benefit substantially, both cognitively and socially/behaviorally, from high quality early childhood education.*

Yet, while the goal of universal availability of early childhood education is often recognized by informal and formal (sometimes legislative) statements of intent, it most often remains an unrealized goal. Table 2 shows that in the United States less than half of three- and four-year-olds were enrolled in preschool programs in the 2008-2010 period. Enrollment in the New England states varies widely, with 62% of three- and four-year-olds enrolled in preschool programs in Connecticut in this period, but only 42% in Maine. When five-year-olds and their attendance in kindergarten are included, the figures change substantially, with 60% enrolled across the country in 2010, and a range of 71% to 58% in New England states.

Table 2: Children enrolled in early childhood education programs, United States and New England states

	Percent of children three to five enrolled in nursery school, preschool, or kindergarten, 2010	Percent of children three to four enrolled in preschool, percent, 2008-2010
United States	60%	47%
Connecticut	71%	62%
Maine	59%	42%
Massachusetts	68%	59%
New Hampshire	64%	51%
Rhode Island	†	49%
Vermont	58%	48%

† Estimate not provided when the confidence interval around the percentage is greater or equal to 10 percentage points.

Source: National KIDS COUNT Program,

<http://datacenter.kidscount.org/data/acrossstates/Rankings.aspx?ind=5109#> and

<http://datacenter.kidscount.org/data/acrossstates/Rankings.aspx?ind=7188>

This report argues that it is highly desirable and valuable to society for state governments to support universal early childhood education. In doing so, governments will be putting in place an essential component of economic development, a component that will provide

* The gains of children from low-income families from early childhood education programs is a factor in the argument that public support for these programs should be targeted at these children rather than made universally available. This issue, and the problems with targeting, will be thoroughly addressed in Section IV of this report.

both a long-run foundation for their states' economic development and an immediate boost to their states' economic progress. Moreover, they will be providing an important service to families and strengthening equality of opportunity.

This report will proceed in Section II by reviewing central findings from the studies that have measured the cognitive, social/behavioral, and economic gains from early childhood education programs. In general, these studies show a high rate of return (a high ratio of benefits to costs) to high quality early childhood education.* Indeed, if the returns are measured simply in terms of their impact on a state government's budget, the returns may outweigh the expenditures—and, additionally, there are returns to the individual children, their families, and society at large. Nonetheless, there are important questions that will be addressed regarding:

- To what extent can the results of the studies of particular programs be generalized to the universal availability of state-supported early childhood education? and
- What lessons can be drawn from studies that indicate less favorable impacts of early childhood education, especially the study of Head Start issued in 2010?



• Section III will point out the ways state government expenditures on early childhood education have immediate positive impacts on the economy. By making it possible for parents of young children to enter the paid labor force and by raising their productivity, high quality early childhood education can stimulate economic growth. Expenditures on child care are also sometimes viewed as stimulating demand in the economy, because those expenditures would have large within-state multiplier impacts (as compared to expenditures on several other activities) and would directly create a large number of jobs. Funds coming from *outside* the state may substantially stimulate demand when directed towards child care; however, the demand stimulus of *state government funds* would be largely if not entirely offset by either reductions in spending in other areas or increases in taxes.⁹

While several of the issues surrounding government-supported early childhood development will not be dealt with in this report, Section IV will examine one important question: Why should the state provide universal free early childhood education (as it does K-12 education), as opposed to providing programs directed toward children from low-income families? Also, Section IV will offer some brief comments on the related issue of “quality versus availability.” That is, if the state will not initially supply sufficient resources to support universal high quality early childhood education, as opposed to adequate child care, should the state limit availability in order to assure quality, or should the state accept limited quality

* Box A explains the meaning of “quality” in early childhood education programs.

As is the case with K-12 schooling and higher education, early childhood education is about much more than economics.

in order to provide more extensive availability? There is, in addition, the need to address the question of how the costs of a universally available early childhood education program can be estimated. Fortunately, the cost estimation problem has been addressed by various organizations. Box C (page 28) indicates what is involved and points to the estimation systems that have already been developed.

Before proceeding, it is useful to emphasize that, while this report focuses on the role of early childhood education in economic development, economic issues are only part of the story. As is the case with K-12 schooling and higher education, early childhood education is about much more than economics. In the broadest sense, education is the passing on of culture—the production and reproduction of a successful society, of people who can both get the most out of and make the greatest contributions to society. Economics is an important part of this passing on of culture, but it is only a part. The focus on economic issues here should not obscure the other and broader functions of early childhood education.

II. COGNITIVE AND SOCIAL/BEHAVIORAL GAINS AND THEIR ECONOMIC RETURN

In the history of non-parental child care in the United States, the explicit focus on child development is a relatively recent phenomenon. In the middle of the 19th century, ‘day nurseries’ were established to care for the children of low-income women so that their mothers could engage in paid labor. While concern for establishing day care programs has gone through many phases, this same purpose has remained dominant. During World War II, for example, the huge increase in women’s participation in the labor force was accompanied by a corresponding increase in child care centers. Both changes were reversed right after the war. Today, the large federal expenditure on child care, through vouchers, is designed in connection with the requirement that women receiving transitional assistance (TANF) engage in paid labor.

There have been other motivating factors for government support of day care programs. During the 1930s and also with the advent of Head Start in the 1960s, day care programs were expanded at least in part to provide employment. The Emergency Nursery Schools of the Works Project Administration of the 1930s served primarily to provide jobs for unemployed teachers. In all of these early childhood care programs, the development of the children was only implicit; that is, for example, it was recognized that the children of mothers in the paid labor force needed some form of adequate care. But child development was not a primary, central focus.¹⁰

Head Start marked a turning point. Head Start was driven by a recognition that the nature of care for young children could be a major factor affecting their long-run development. According to Edward Zigler, one of the planners of Head Start and the developer of the program’s first performance standards, “Since its inception Head Start’s purpose has been to prepare poor children for school”—though Zigler also notes that “as a War on Poverty program, Head Start was designed to offer opportunities to poor adults. Many were hired as teachers even though they did not have

any level of professional education and had no experience.”¹¹ Of course, before Head Start, many individuals and individual programs had given emphasis to child development in the care of young children. But it was with Head Start that child development became adopted as the motivation for a major program and changed the terrain for analysis of child care programs. Indeed, since the 1960s, the term “early childhood education,” rather than “day care” or “child care” has come to the fore.

II.A. THE SUCCESSES OF HIGH QUALITY EARLY CHILDHOOD EDUCATION

An essential aspect of the economic development argument for supporting early childhood education is that these programs can significantly improve the cognitive and social/behavioral capacities of young children so that later in life they will be more productive citizens...

An essential aspect of the economic development argument for supporting early childhood education is that these programs can significantly improve the cognitive and social/behavioral capacities of young children so that later in life they will be more productive citizens than they would otherwise have been. As more productive citizens, their direct economic contributions will be enhanced, and, just as important, they will place less financial burden on society—having less need for remedial educational services, better health outcomes, less need for welfare support, and a reduced engagement with the criminal justice system.

Early support for this argument came from several studies, but, virtually by definition, these studies were of model programs—that is, programs that are “typically funded at higher levels and run by more highly trained staff than large-scale, publicly-funded programs.”¹² Studies were based on model programs because one of the defining features of model programs is that they capture good data on the participants, establish control groups in a randomized process, and follow both the participant groups and the control groups in subsequent years.*

Each of these studies of model programs found positive effects of the programs on measures of scholastic success. In a 2001 review of these studies, Janet Currie provides this summary of the studies of two widely known programs, the Abecedarian Project and the Perry Preschool Project, both of which have served children from low-income families:†

The Carolina Abecedarian Project involved ... 57 treatments and 54 controls. At birth, children were randomized into a treatment group that received enriched center-based child care services emphasizing language development for eight hours per day, five days a week, 50 weeks per year, from birth to age five, and a control group that did not receive these services. The teacher/student ratio ranged from 1:3 to 1:6 depending on the child's age...

* Even while several studies met this “gold standard” of having randomized control groups, they were sometimes hampered by attrition in post-program years. Also, the statistical significance of results obtained was sometimes limited by the small number of children involved in the studies.

† Currie also cites the Chicago Child Parent Centers as another studied program that achieved positive results. Studies of the Chicago centers, however, did not have randomly established control groups. They nonetheless provide important insights that will be taken up below.

At age 15, the Carolina Abecedarian Project found that the children who had received the preschool intervention had higher scores on achievement tests (especially reading) and reductions in the incidence of grade retention and special education... Retention in grade and being placed in the special education “track” are viewed by educators as predictors of dropping out of school. In addition, they create additional costs to society which have to be weighed against the costs of providing the early intervention.



The investigators have now completed a follow-up assessment of the Abecedarian children at age 21. Of the original 111 infants, 104 were assessed. At age 21, the children who received the preschool intervention had higher average test scores and were twice as likely to still be in school or to have ever attended a four-year college.

The most famous of these interventions is the Perry Preschool Project, which involved 58 children in the treatment group and 65 controls. The intervention involved a half-day preschool every week day plus a weekly 90-minute home visit, both for eight months of the year, for two years. Teacher/student ratios were 1 to 6, and all teachers had master’s degrees and training in child development. The intervention had positive effects on achievement test scores, grades, high school graduation rates, and earnings, as well as negative effects on crime rates and welfare use (as of age 27).¹³

More recent studies of the Perry Preschool Project have estimated rates of return for expenditures on the program. In a paper published in 2003, Art Rolnick and Rob Greenwald report a 16% rate of return on expenditures on the Perry Preschool Project. Even if the returns to the participants (e.g., their gains from higher earnings later in life) are ignored and only the returns to society are taken into account, Rolnick and Greenwald report a 12% rate of return.¹⁴ In a 2006 article, Clive R. Belfield and his colleagues report a substantially higher figure, including a 17% rate of return, ignoring the returns to participants.¹⁵ Rolnick and Greenwald find a cost-to-benefit ratio of 8.7-to-1 for the public and the participants, and a ratio of 7.2-to-1 for the public alone; that is, for every dollar spent on the program, the public and participants combined obtained a benefit of \$8.70, of which \$7.20 was benefits to the public. Belfield et al. find a cost-benefit ratio of 12.9-to-1 for the public alone.[†]

The largest component of returns to the program reported in these two studies appears in the reduced crime burden on society. Other gains—for example, increased lifetime earnings for participants, their consequent higher tax payments, and reduced welfare costs—are not trivial, but they are greatly outweighed by the

* The gains to society, ignoring the gains to the participants, include such things as the reduced state expenditures on remedial education, health care, crime, and welfare, as well as the value to society of the increased production and higher taxes paid by the participants.

† Both studies use a 3% discount rate to compute benefit-cost ratios. The Rolnick-Greenwald article is based on data for participants up to age 27, while the Belfield et al. data follow participants to age 40.

reduced crime burden. (However, one reason crime may be lower for participants than for the control groups is the higher lifetime earnings of the former.) Associated with the importance of crime reduction, the returns to the program are much higher for males than for females. It is also important, however, to note that these (and other studies to be discussed) do not take account of the non-financial, and thus not readily measured, benefits that have been generated by the Perry Preschool Project. These include, for example, the society-wide impacts of greater equality of opportunity and the improved quality of life for participants who do not become engaged with the criminal justice system and do not incur the indignities associated with the welfare system.

BOX A. WHAT IS HIGH QUALITY EARLY CHILDHOOD EDUCATION?

Early childhood education, like all schooling, is not simply measured by time in a program. Whether the focus is on the program's impact on the lives of the children or on the payoff of the program to society or to both, quality matters—and it matters a great deal.

In the study of the National Institute of Child Health and Human Development (NICHD), quality is measured in two ways, by “regulable” features and “process” features. Regulable features of child care programs (those features that can be regulated and are readily measured) that generally indicate higher quality are a higher adult-to-child ratio, a lower group size, and a higher educational level of the caregiver. Process features are multiple and must be assessed by observation. The NICHD report notes that “positive care giving” is “one of the strongest and most consistent predictors of children's development.” Positive care giving itself has numerous aspects, including, for example: showing a positive attitude, having positive physical contact, responding to vocalizations, asking questions, reading, and actively encouraging positive behavior. While observations of process features may be difficult to measure, the NICHD study points out that positive regulable features are correlated with positive process features. Programs with small group size, higher adult-to-child ratios, and more highly educated teachers tend to exhibit better processes.*

In the Head Start Impact Study, quality is defined in a similar manner. “The measures [of quality] that were examined included, among others, teacher qualifications, including their training and education; classroom literacy and math instructional activities; classroom teacher-child ratios; the nature of teacher-child interactions; and global measures of the care environment as measured by the Early Childhood Environment Rating Scale-Revised (ECERS-R) and the Family Day Care Rating Scale (FDCRS) scores.”†

The Carolina Abecedarian Project and the Perry Preschool Project exhibit the regulable (structural) features of high quality programs. For example, according to Janet Currie, in the Abecedarian Project, “the teacher/student ratio ranged from 1:3 to 1:6 depending on the child's age.” In the Perry Preschool Program: “Teacher/student ratios were 1 to 6, and all teachers had master's degrees and training in child development.”‡ National standards for state run and funded preschool programs are a teacher/student ratio of 1:10 and a bachelor's degree requirement for head teachers.**

It would seem relatively obvious, but nonetheless deserves emphasis, that high quality programs tend to be high cost programs. Small group size and a high adult-to-child ratio mean higher cost per child for any given personnel cost. And staff with higher levels of education means higher personnel costs. As with K-12 schools, a higher level of expenditure does not necessarily mean higher quality, but, given what is known about determinants of quality in early childhood education, it is hard to imagine that high quality can come without high cost.

* NICHD study as cited in the text, pp. 8-13.

† Head Start Impact Study as cited in the text, p. xxi. Details of these rating scales can be found on the web site of the Frank Porter Graham Child Development Institute of the University of North Carolina at Chapel Hill, <http://ers.fpg.unc.edu/>.

‡ Susan Currie, as cited in the text, pp. 219-220.

** *The State of Preschool 2011: State Preschool Yearbook*, National Institute for Early Education Research, Rutgers Graduate School of Education, 2011, <http://nieer.org/yearbook>.

As well done and informative as these and earlier studies of the Perry Preschool Project have been, however, they have had certain technical weaknesses in their statistical analyses.¹⁶ To a large extent, these weaknesses have been repaired in a set of studies by James Heckman and his colleagues. While involving technical statistical issues, the improvements implemented by Heckman and his colleagues are important in substantiating positive impacts of the Perry Project and, by implication, the impacts of other high quality programs*¹⁷



The work of Heckman and his associates does lead to smaller estimates of the returns to expenditures on the Perry Project than those obtained in other studies. However, their work still yields large estimates of the rate of return and benefit-cost ratios. Their 2010 article provides a rate of return estimate in the range of 7% to 10% per year, taking into account the returns to the participants and to society in general. Their associated ratio of benefits to costs range from \$7 to \$12 for every dollar spent.^{†18} These figures are lower than the estimates obtained in earlier studies, but, as Heckman points out elsewhere, rates of return in this range are “above the post-World War II stock market returns to equity,” estimated to be 6.9% before the 2008 meltdown.¹⁹ Moreover, it is again necessary to keep in mind that all of the estimates of the economic returns to investment in early childhood education do not attempt to take into account broader impacts on the quality of life for the participants and for society at large. In particular, as Heckman has emphasized, the success of high quality early childhood education programs makes a significant contribution to equal opportunity and to reducing income inequality.²⁰

The accumulated evidence leaves no doubt that programs like the Perry Preschool Program and the Abecedarian Project, high quality programs, make a marked contribution to the lives of young children and yield high returns to society’s investment in them.

II.B. QUALIFICATIONS FROM LARGER SCALE STUDIES

Not all the evidence on the impact of child care programs on childhood development is unequivocally positive. Evidence from some large scale studies suggests

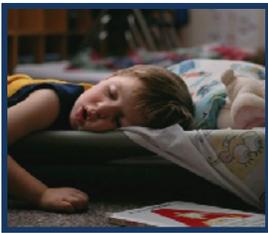
* In particular, Heckman and his colleagues improve on earlier studies by: accounting for deficiencies in the original randomization on which the Perry Preschool Program studies had been based; wherever possible developing standard errors and undertaking sensitivity analysis for their estimates of rate of return and benefit-cost ratios; presenting estimates of the “deadweight” costs of taxation in financing the program; relying on a wider and more sophisticated set of methods to deal with missing data on earnings and to extrapolate future earnings; and wherever possible using local data on the costs of education, crime, and welfare participation. Heckman’s work has received special attention partly because of the high quality of econometric analysis, but also because (1) Heckman has received the Nobel Prize in economics and (2) he is at the University of Chicago and is generally associated with the conservative positions of “The Chicago School.”

† Heckman et al. add: “For the benefit of non-economist readers, annual rates of return of this magnitude, if compounded and reinvested annually over a 65 year life, imply that each dollar invested at age four yields a return of 60–300 dollars by age 65. Stated another way, the benefit-cost ratio for the Perry program, accounting for deadweight costs of taxes and assuming a 3% discount rate, ranges from 7 to 12 dollars per person, i.e., each dollar invested returns in present value terms 7 to 12 dollars back to society.”

that outside-of-the-home early childhood programs sometimes have negative impacts on children’s social/behavioral development, and some studies suggest that the cognitive gains do not have lasting impacts.

These results from large scale studies do not negate the positive findings of the smaller studies focused on particular programs. Instead they underscore the importance of creating high quality early childhood education programs. Also, they bring out the fact that early childhood education programs cannot make their full contribution to the development of young children and cannot have their full economic impact without complementary developments in the whole environment that the children encounter. In particular, the conditions in their families and the character of the K-12 schools they enter affect the context in which young children’s education has its impact.*

The large scale studies provide valuable information and are worth careful consideration. They contribute to an understanding of how early childhood education has its most positive impacts. Also, they suggest that caution is desirable in the development of universal early childhood education programs.



• In the early 1990s, the National Institute of Child Health and Human Development (NICHD)—a division of the National Institutes of Health in the U.S. Department of Health and Human Services—launched a large study to investigate the relationship between child care and child development. “Child care” was defined as any care provided on a regular basis for ten hours a week or more by someone other than the child’s mother.† Phase I of the NICHD study, in the years 1991-1994, included 1,364 children aged 0 to three years old and their families. In Phase IV, in the years 2000-2004, 1,073 children, then in grade school (up to the sixth grade), and their families were still being followed. The data compiled in the study—on the child care experiences of the children, the conditions of their families, and the children’s cognitive and social/behavioral development—has been the basis of numerous analyses.²¹ Findings from many of these analyses are presented in a 2006 report.²² Several points from this report deserve emphasis here:

- Consistent with results of other studies discussed above, children in higher quality child care showed “somewhat” better language and cognitive development during the first four-and-a-half years of life.
- However, according to estimates in the report, more than half, 53%, of 1½ to three-year-olds in child care in the United States were in child care settings that

* In addition, the large scale studies focus on test results, both cognitive and social, and they do not examine long-term economic outcomes—either children’s earnings when they ultimately enter the labor force or on such issues as grade retention, reliance on the welfare system, and engagement with the criminal justice system. It is quite possible, perhaps likely, that test scores do not capture the factors that affect long-term economic outcomes.

† Regular care by a father was viewed as the same as regular care by other non-mother relatives.

were evaluated as only “fair,” and 8% were in “poor” settings. The estimates indicated that only 9% of children in this age group in child care in the country were in “very high” quality settings and 30% were in “good” settings.

- Moreover, children who had experienced more hours in child care showed “somewhat” more behavior problems in child care and in kindergarten than those who had experienced fewer hours.
- Children who had attended child care centers had “somewhat” better cognitive and language development but also showed “somewhat” more behavior problems than children who experienced other non-maternal child care arrangements.
- These results indicating the impact of child care arrangements notwithstanding, the report states that parent and family characteristics (family income, maternal vocabulary, home environment and maternal cognitive stimulation) were more strongly linked to child development than were care features.

On the one hand, these findings suggest that children in child care settings (i.e., non-maternal care) may develop social/behavior problems. Furthermore, although high quality care might reduce the development of social/behavioral problems, high quality care is not sufficiently widespread. On the other hand, all the impacts reported by the study—positive and negative, cognitive and social/behavioral—are reported with the modifier “somewhat,” and parent and family characteristics were generally more important in affecting children’s development than were child care arrangements.

The implicit message of the [NICHD] report is then that there is a need for greater attention to and more support for providing higher quality child care.

In spite of the cautionary findings regarding social/behavioral outcomes “somewhat” associated with non-maternal child care, the NICHD report certainly does not offer a negative assessment of child care for young children. These findings must be set in the context of the report’s observations that a majority of programs are not of high quality. In high quality programs, the studies did find some positive results (though still modified by “somewhat”). The implicit message of the report is then that there is a need for greater attention to and more support for providing higher quality child care. Also, the report carries the message that child care, whatever its quality, is not a panacea for resolving issues of child development and overcoming the differences that exist among families and other aspects of children’s environments (e.g., K-12 schools)—though high quality child care can move things in a positive direction.

Something similar could be said of the 2010 report of the long-awaited comprehensive study of Head Start.²³ While this study has been seen in some quarters as providing a negative assessment of the accomplishments of Head Start,²⁴ its results are a good deal more complex. The Head Start Impact study is valuable partly because Head Start itself has been so important, but also because of the study’s design. It was conducted nationally, involving nearly 5,000 three-year-old and four-year-old children, assigned to either Head Start or a control group that did not

have access to Head Start but could enroll in other early childhood programs. Children were followed from program application through the spring of their first grade year.²⁵ To assess the children, the study employed multiple measures—21 different cognitive measures and 16 different social/behavioral measures, though not all measures were used at each level.²⁶

What do these results from the Head Start study indicate... about the likelihood of major gains in children's development from universal provision of early childhood education?

At the end of their Head Start years, “There [was] clear evidence that Head Start has a statistically significant impact on children’s language and literacy development,” but the impacts were of “modest magnitude” and often limited to a single one of the many measures. Likewise, for mathematics, impacts were found for a single outcome measure. On social-emotional development, there were no detectable impacts for children who began Head Start at age four. For the younger Head Start group, however, the study found reductions in problem behaviors and increased social skills.²⁷

As weak as these results appear, by the end of the first grade, measurable impacts appear even weaker. Improvements in language skills showed up on only one measure. The study concludes: “This pattern of limited cognitive impacts in the school years may suggest that the magnitude of the initial cognitive impacts may not have been sufficiently potent for the early gains Head Start children made to be sustained as they developed and moved into the elementary school years.” Regarding social skills, for the younger group, there was some positive evidence of improvement, but the results were ambiguous for those who entered at age four.²⁸

What do these results from the Head Start study indicate—not just about Head Start but about the likelihood of major gains in children’s development from universal provision of early childhood education? Do the apparent limited cognitive and social/behavioral impacts of Head Start and the fairly rapid “fading out” of impacts imply that early childhood education, or at least large scale early childhood education programs, are not important for their positive impact on child development?*

Perhaps most important, from the information in the Head Start Impact Study, it would seem that Head Start as a whole cannot be viewed as “high quality” by the standards set by such programs as the Abecedarian Project and the Perry Preschool Project. The Impact Study does state that the majority of study children in Head Start attended classrooms that were “good” on the quality rating system (see Box A, page 8), but continues: “However, there was variation in the [children’s] experience... About 40 percent of the children ... were in classrooms that did not emphasize language and literacy or math activities...” Also, about 40% of the

* Of course large scale programs are important for other reasons, especially for the provision of child care for working parents. There are, as discussed in the next section, also short run economic development gains from expenditures on early childhood education.

children were with teachers who did not have either a B.A. or Associate's degree, and training and mentoring of teachers was very limited.²⁹ While the Impact Study does not report on teachers' salaries, data for New England states indicate that Head Start teachers receive at most 60% of the salaries of kindergarten teachers.³⁰ Thus, even leaving aside the limits of the Head Start study (e.g., the lack of long term follow-up), its results do not directly contradict the findings from the studies of high quality programs.

Furthermore, an interpretation of the results of the Head Start study can be best understood if those results are placed in the context of an important finding of the NICHD study discussed above—namely that the NICHD study found that parent and family characteristics (family income, maternal vocabulary, home environment and maternal cognitive stimulation) were more strongly linked to child development than were care features. Head Start children come from the most economically deprived segment of society.³¹ It is not reasonable to expect that a year's engagement with an early childhood education program will have substantial impacts on the development of these children—if it is not combined with continuing support in subsequent years.



• Head Start children—as is generally true for children in poverty—tend to go on to poorer quality K-12 programs.³² And: “Not surprisingly, the study children—regardless of Head Start status—attended schools with much higher levels of poverty than schools nationwide...”³³ An expectation that a year in an early childhood education program will have lasting effects regardless of the quality of subsequent schooling is a bit like an expectation that feeding a young child a nutritious diet will yield good health in later years regardless of the child's diet in those later years.³⁴

• According to Janet Currie, the Chicago Child Parent Centers are an “intervention [that] is similar to providing a Head Start-like preschool program and then improving the school subsequently attended by the Head Start children.”³⁵ Studies of the Chicago program, which followed children well into their K-12 schooling, show substantial gains in reading scores, and reductions in grade retention, special education needs, and delinquency. Compared with the Head Start results, these studies of the Chicago program tend to support the importance of continuing engagement as the basis for obtaining the full impact of early childhood education programs.³⁶

The Head Start Impact Study provided some disheartening results for advocates of early childhood education. Yet the study, it should be emphasized, was limited in various ways. In particular, it did not follow the children over a sufficiently long period to capture the sorts of impacts that show up in the studies of the high quality (albeit small) programs discussed earlier. Moreover, results based on tests, while important, are not the same as results obtained in those other studies, based on the long-term experience of children with regard to income, health, crime, welfare involvement, and proceeding through school at the standard pace. Most important,

perhaps, while Head Start has performed valuable functions, it should not be viewed as universally “high quality” early childhood education.

The studies discussed in this section should underscore two sets of lessons for early childhood education advocates:

1. Give strong emphasis to high quality in establishing early childhood education programs.

- It is clear that high quality programs make substantial contributions to the lives of young children and yield high returns to society’s investment in them.
- Yet, however great the need is for widely available child care—and the need is very great—providing “adequate” care is unlikely to yield the strong child development gains that are generated by high quality care.
- When high quality care cannot be provided (because, for example, of a lack of funds or a lack of sufficiently trained staff), adequate care can still be important in supporting the child care needs of families.
- High quality care is, of course, expensive. However, the evidence suggests that, when more is spent on early childhood education, the returns to society and to the children per dollar spent are higher.*

2. Do not expect (or claim) too much of early childhood education programs. As Edward Zigler, a leading advocate for early childhood education has put it: “The most valuable lesson advocates for preschool education can take away from the early intervention studies is not to oversell the potential benefits.”³⁷

- These programs can be important in improving the lives of children, but their accomplishments will be constrained by the quality of the programs themselves, by the larger environment, particularly the conditions in children’s families, and by the quality of the schools that the children attend after their early childhood experiences.
- Early childhood education programs can be a good place to start efforts to improve the lives of children, but they are best viewed as only one part of a larger effort.

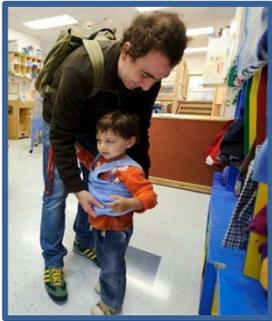
III. DIRECT AND IMMEDIATE IMPACTS ON STATE ECONOMIC DEVELOPMENT

While the long-term impacts of early child education programs are their clearest and probably most substantial economic contributions, there are short-term impacts—direct and immediate—that are also significant. Two types of short-term

* An analogous calculation explains why we build paved roads rather than gravel roads. We could get there on the gravel roads, but the extra expenditure on paved roads is worth it, yielding a higher return per dollar spent.

impacts are relatively clear: the expansion of output and incomes as more parents (usually mothers) are able to enter the paid labor force; and the increased productivity of parents in the paid labor force when their children are in high quality educational programs. A third short-term impact often mentioned is the stimulus (job creation) of government support for early childhood education; however, this stimulus, while perhaps relevant in some instances, is more limited than it may seem.

III.A. MORE PARENTS IN THE PAID LABOR FORCE*



• An expansion of the availability of early childhood education will tend to increase
• output because more parents will be able to enter the paid labor force.† Numerous
• studies have documented the impact of child care availability on parents’—
• virtually always mothers’—labor force participation rates. In the early 1970s, for
• example, James Heckman examined the conditions under which day care vouchers,
• making child care available to women otherwise eligible for welfare payments,
• would induce those women to enter the paid labor force. Heckman showed, not
• surprisingly, that both the wage that women could expect by entering the labor
• force and the cost of child care were significant factors affecting the women’s choice
• between welfare and employment with the voucher.³⁸ Another example is provided
• in a 1992 study by Rachel Connelly, showing significant impacts of child care costs
• on married women’s labor force participation. In fact, Connelly found that for a
• given number of children in the family “women with very young children could be
• expected to participate in the labor force at rates equal to women with older chil-
• dren were it not for the cost of child care.”³⁹

While these and other studies are useful in providing information about the impact of child care availability on women’s labor force participation, they do not tell us the overall impact on the labor force supply resulting from the establishment of universally available low-cost child care—simply because experience with such programs in the United States is very limited.

Studies of the situation in Quebec, however, are instructive. In 1997, the government of Quebec introduced a universal low-cost (\$5/day) child care program, originally for children aged four but by 2000 for all children 0-59 months who were not

* There are issues here regarding at what age it is desirable (from a child development perspective) for parents to be the primary caregivers of their children, as opposed to entering the paid labor force. However, when parents enter the paid labor force because of economic need and parents receiving welfare support (TANF) are required to enter the paid labor force, the issue is not whether they will have non-parental care for their children but the quality of that care and how the programs are financially supported. Moreover, at this time, most states are a long way from making universal early education available to three- and four-year-olds, let alone to the younger children for whom these issues are most relevant.

† When parents take care of their own children, they are certainly engaged in production, providing real services, even though the output is not market output and their labor is not paid labor. When, however, these services are provided by an early childhood education program and the parents are able to enter the paid labor force, total output will generally be greater—taking into account both market output and non-market output—if for no other reason than simply economies of scale in child care.

BOX B. QUALITY CHILD CARE AND THE INCREASE OF OUTPUT AND GOVERNMENT REVENUES: A VERY ROUGH ILLUSTRATION

How much does the availability of quality early childhood education increase output by allowing more parents (mothers) to enter the paid labor force? And how does this increase affect government revenues through taxation?

If we assume that salary measures a person's contribution to output, then, by the government paying for the child care/education, the addition to annual output per parent entering the paid labor force (for a single-child parent) is:

$$Q = S_p + S_t/N - P_{cw} - P_{ncw}$$

Where: Q = addition to output; S_p = parent's salary in the labor force; S_t = salary of the teacher; N = number of children per teacher; P_{cw} = value of child care work of the parent and P_{ncw} = value of the non-child care work of the parent that is no longer done when the parent enters the paid labor force. (P_{ncw} is included to take account of the other home care services—e.g., food preparation and cleaning—that a parent at home with children produces in addition to child care; these home care services, while not eliminated, would be reduced when the parent enters the paid labor force.)

If we assume that the parent's salary in the labor force is \$36,000, the salary of the teacher in a high quality child center is \$40,000,* the child-teacher ratio is 6:1 (assuming a salary and ratio of high quality), the parent's child care work has the same value as the teacher's (i.e., $S_t/N = P_{cw}$), and the parent's lost non-child care work is valued at \$5,000, then

$$Q = \$36,000 + (\$40,000/6) - (\$40,000/6) - \$5,000 = \$31,000$$

In this rough calculation the primary cause of the increase is the economies of scale in taking care of children. That is, the calculation assumes that one teacher can take care of six children as well as the parent can take care of one.

If we assume that the parent has two children (twins!) and that because of having two children the parent does half as much non-child care work and thus half as much is lost when the parent enters the labor force, then:

$$Q = S_p + 2(S_t/N) - 2P_{cw} - P_{ncw}/2 \quad \text{or} \quad Q = \$36,000 + (\$80,000/6) - (\$80,000/6) - \$2,500 = \$33,500$$

The increase in monetized income will not be the same as the increase in output, because the services produced by the parent before entering the workforce (P_{cw} and P_{ncw}) are not monetized. Non-monetized income doesn't get taxed. In the case of the single-child parent, the increase in monetized income is \$42,667. If we assume that 4% of this is captured in various state taxes, then the resulting increase in state revenue is \$1,707. If we further assume that the state saves an additional 1% because of the parent's reduced need for state-provided services, the total revenue plus savings to the state treasury is \$2,133.

If the cost to the state of providing high quality child care is \$12,000 per child (remember: this is high quality early childhood education), this increased revenue plus savings to the state treasury would cover 17.8% of the cost, a substantial portion. (The \$12,000 figure is higher than the average cost in 2011 in any New England state. It would cover the teacher's \$40,000 wage plus benefits and provide roughly another \$22,000 per teacher for overhead.)

With the two-child parent, things are not so favorable. The increased revenue plus savings to the state treasury would cover only 10.3% of the cost—since only one person is added to the paid labor force but the cost is twice as much (though one-sixth more of a teacher is employed).

Keep in mind that this is only a very rough illustration. Also, this calculation deals only with new entrants to the paid labor force. Most program beneficiaries would already be in paid labor force.

* \$36,000 is the annualized "median usual weekly earnings of full-time wage and salary workers," women, third quarter 2012, seasonally adjusted, Bureau of Labor Statistics, <http://www.bls.gov/news.release/wkyeng.t01.htm>. The \$40,000 figure, higher than the salaries of most current child care teachers, is still below the average salary for kindergarten teachers in the New England states.

in kindergarten. By 2002, the program was serving 163,000 children, nearly half of the eligible children in Quebec. Pierre Lefebvre and Philip Merrigan report a significant and large impact of the program on mothers' labor force participation. Taking into account the subsidies and fiscal benefits that existed before this universal \$5/day program, they find: "... the effect of the policy to be 7.6 percentage points for labor force participation. Since the participation rate in Québec for 2002 is 69%,

we estimate that it would have been 61.4% without the policy. Hence the policy increased participation by 12.3%...”⁴⁰ Another later study of the Quebec experience by Michael Baker et al. found similar quantitative impacts on mother’s labor force participation. Moreover, this other study reports that “...40 percent of the costs of the child care subsidy are covered by the income and payroll taxes on the extra labor the subsidy encourages.”⁴¹

For parents of young children who are in the labor force, access to high quality programs for their children will raise their productivity.

The situation in Quebec is certainly different from that in the United States, in many ways. Yet these impacts of a universal, low-cost child care program are consistent with findings of studies (noted above) based on experience in the states and supply some useful indication of the extent of the impacts of such programs on the labor force participation of mothers with young children. Box B, page 16, presents a rough estimate of the fiscal impact of labor force participation increase by mothers.[†]

However, for many families, especially low-income families, the impact of a universal early education program might not only be an increase in labor force participation. Where parents are already in the labor force, the impact would still be beneficial for them and for society, allowing them to switch from lower quality child care arrangements to the facilities supported in the universal program. This switch would include a change from care by grandparents and other relatives to child care centers. Data from the Current Population Survey suggest that, unlike higher income families, low-income families rely more heavily on care by relatives than on child care centers.⁴²

III.B. THE PRODUCTIVITY OF PARENTS

For parents of young children who are in the labor force, access to high quality programs for their children will raise their productivity. High quality, among other things, means reliable. With reliable child care programs, parents will be less frequently absent from their employment. Further, with the knowledge that their children are in high quality programs, parents will be under less stress, and consequently will be more productive. They will, moreover, be more satisfied with their employment because they will not—or will less frequently and less intensely—harbor the feeling that their jobs are in conflict with the well-being of their children.

* Before the \$5/day program was established in Quebec, there were substantial fiscal benefits supporting child care programs in the province. Lefebvre and Merrigan estimate that prior to the introduction of the \$5/day program, net costs to families were only \$10 day, thus the change amounted to a 50% reduction in the price to families. One would expect that a larger percentage drop in the price would result in a larger increase in the labor force participation rate.

† At the time of this writing, with the high levels of unemployment that exist throughout the United States, the entry of more people into the paid labor force will not provide a stimulus. The problem at this particular time is demand, not labor supply. However, it is always desirable to give people the choice of being able to enter the paid labor force. Also, at times when the unemployment rate is lower—nationally or in particular areas—the expansion of support of early childhood education and the consequent increase of participation in the paid labor force can have relatively quick positive impacts.



This impact of high quality early childhood education on enhancing the productivity of parents is widely touted, and the explanation for the productivity increase seems quite reasonable. There is, however, very limited empirical evidence for this productivity impact and no measurement of its extent.⁴³ This is understandable, perhaps, given the difficulty of obtaining relevant quantitative evidence. Yet we do have some relevant evidence:

- A 2007 study of New York City low- to moderate-income public sector workers, found that, as compared to a control group, workers who received subsidies for their children’s care and took part in work-family support workshops reported that their productivity increased and they were less often absent from work; also, they experienced a substantial decrease in disciplinary actions.⁴⁴
- A 1987 study demonstrates a significant association between work-family strain and workers’ decreased well-being—higher levels of depression, poorer health and lower energy, lower life satisfaction, lower job satisfaction.^{*45}
- A 1999 review of the literature on work-family conflict identifies several studies showing a strong relationship between work-family conflict and employee turnover.⁴⁶
- A 2001 study of the impact of a program in Zurich, Switzerland, found that “publicly funded child care resulted in... higher productivity and earnings [of parents] due to maintaining productive workers in work.”⁴⁷
- Numerous studies have established the significant impact on parental productivity of employer- supplied or employer-supported child care programs.⁴⁸

No one of these bits of evidence provides solid support for the connection between high quality child care programs and increased parental productivity, and none presents relevant measures of the extent of any productivity increase. Nonetheless, taken together, along with the explanation for such a connection, they provide substantial indication that one of the immediate impacts of high quality early childhood education programs—one of the short-run impacts on economic development—is the impact of programs on parental productivity.

III.C. THE STIMULUS IMPACT?

Publications of the “Linking Economic Development and Child Care Research Project” have pointed out that a state’s child care sector has relatively strong linkages to the rest of the state’s economy.⁴⁹ Compared to spending in most other sectors, funds devoted to child care create more within-state demand and thus more production in the rest of a state’s economy. A good part of the explanation for this

* Work-family “strain” or work-family “conflict” often has roots in child care issues.

strong linkage effect is that a large share of expenditures on child care is salaries, especially low salaries, and thus the original expenditure gets re-spent at a relatively high rate, and re-spent on goods and services produced within the state. That is, the within-state “multiplier” on child care spending is relatively large. These facts lead the authors of one publication to conclude: “This analysis shows that child care is a good investment for economic developers—for its short term regional economic linkage as well as its long term investment in human capital development for the next generation of workers.”⁵⁰



• This conclusion is reasonable if the “economic developers” are using funds from outside the state. For example, as Mildred Warner has pointed out, for states to have used federal stimulus funds in the American Recovery and Reinvestment Act of 2009 (ARRA) for early childhood education programs would have been an effective means to stimulate economic expansion during the recession of 2008-09.⁵¹ The linkages of child care to the rest of a state’s economy are somewhat larger than those of several other sectors. Therefore, the aggregate demand impact within the state through the multiplier effect and thus the stimulus within the state would have been somewhat larger. As the ARRA was being set in motion, there was a great deal of talk about the need for “shovel ready” projects, implying that the funds would be well spent on construction and maintenance of such projects as road and bridge construction. Yet in terms of demand expansion and short term job creation, spending the funds to maintain child care programs would probably have been somewhat more effective. (“Job creation” in the recession would have largely meant saving jobs, reducing the layoffs.)*

Yet short-term stimulus based on funds generated by federal deficit spending during a recession is not the same as economic development. Such an injection of funds to the state is a temporary phenomenon. The funds may help avoid a decline in child care programs at the moment, but they will not be a lasting, stable basis for the operation of the programs. Moreover, state governments cannot operate child care programs on the basis of budgetary deficits. Any state expenditures on those programs must come either from higher taxes or reduced spending on other government programs—both of which would have negative impacts on demand that would counterbalance the positive income and employment impacts of the expenditures. These negative impacts might be attenuated in some ways—e.g., by raising taxes on high income households—and the positive impacts might be greater with

* Experiments with the IMPLAN state input-output models do show that for any fixed amount of new state expenditure, many more jobs would be directly created in child care than would be directly created with the same expenditure in many other sectors—construction, for example. This is largely a result of the fact that workers in child care are paid at much lower levels than workers in many other sectors. A given amount of expenditure thus pays the salaries of more child care workers than, for example, construction workers.

child care expenditures than with some other programs. Yet, on net, the demand created by state government spending on child care will not make a lasting significant contribution to a state's economic development.

IV. A COMPLEX OF REMAINING ISSUES: THE VALUE OF UNIVERSAL PROGRAMS

While there is wide recognition of the importance of high quality early childhood education, there remain numerous controversies regarding how this care is best delivered. These controversies include, for example: the appropriate age for children to enter non-parental care, whether emphasis should be on cognitive/academic development or a whole child approach, the proper preparation for teachers, how quality and accountability can be assured, whether government support for early childhood education should be universal or targeted, and how to deal with quality versus availability.⁵²

Should only high quality programs be developed, even if this means fewer children will have spaces in the programs?

• These are important issues, but no attempt will be made to deal with most of them in this report. The issue of whether government support for early childhood education should be universal or targeted, however, begs attention because of its close connection to many of the points developed in the preceding sections. So it will be discussed here, followed by a few comments on the corollary issue of quality versus availability—that is, when funds are not sufficient to make high quality programs available to all who are eligible (however eligibility is determined), should society opt for making more spaces available, even if this means the programs are not high quality? Or should only high quality programs be developed, even if this means fewer children will have spaces in the programs?

IV. A. UNIVERSAL VERSUS TARGETED EARLY CHILDHOOD EDUCATION

The case for targeted government support of early childhood education—targeted at children from low-income families—is based on two observations: first, resources are scarce—in this case, the funds that government has available to support social programs; second, the payoff of early childhood education is largest for children from low-income families. It would seem to follow that the available funds should be targeted to provide early childhood education for children from low-income families, where those funds would get the highest return, the largest “bang for the buck.” Moreover, not only will the cognitive and social gains per dollar spent be the greatest, but, in addition, by targeting the funds on programs for economically disadvantaged children the contribution of the programs to equal opportunity would seem to be greatest.

There are, however, several problems with this argument. To begin with, it is built upon the assumption that government funds for social programs, child care among them, are inherently limited. Yet it is these very limitations that this discussion is intended to influence. Ideally, budget decisions would be based on a clear understanding of the costs and benefits (to the public and individuals) of each program vying for funds, and programs would compete based upon that understanding. The

... while children from low-income families gain the most from early childhood education, their gain is greater in programs that are diverse in terms of the income levels of the children's families ...

total amount of funding—federal and state—for child care would thus remain an open question, and decisions about targeted versus universal programs would be based on an assessment of the substantive gains from and problems of each option. In this regard, then, there are several points that need consideration:

1. There is substantial evidence that, while children from low-income families gain the most from early childhood education, their gain is greater in programs that are diverse in terms of the income levels of the children's families than in programs targeted at children from low-income families.

That is, it is better for the children—and, consequently, better for society—for low-income children to be in universal programs. For example:⁵³

- A 2007 study compared two groups of children from low-income families, one entering economically diverse preschools and the other entering preschools for low-income families. The study found significantly greater improvement in the language scores of the former group over the course of a year. In fact, for the children in the diverse preschools, their test score gains over the year were not significantly different from those of the more affluent children in the same programs.⁵⁴
- A 2009 study involving 1,812 four-year-olds enrolled in 453 classrooms in 11 states that provide large-scale public pre-kindergarten programs found higher expressive language abilities among peers positively associated with children's development of receptive and expressive language.⁵⁵
- A 2007 study estimated the value-added effects of peer abilities on the educational outcomes of a sample of four-year-olds who attended Head Start, publicly subsidized pre-kindergarten, or private preschool in Georgia. The study found that the ability level of the peers in a child's classroom has direct and positive effects on the child's cognitive skills, pre-reading skills, and expressive language skills.⁵⁶

This evidence of studies focused on early childhood education is buttressed by studies on desegregation (and re-segregation) in K-12 schools carried out by the Civil Rights Project.⁵⁷ These studies show that African American and Latino students tend to do better (as measured by test scores) in desegregated schools, as compared to segregated schools, while other students suffer no loss and sometimes show a gain. Moreover, school diversity appears to enhance the occupational attainments of African American students and enhance the comfort level of all students in their association with people of other racial groups. While racial diversity and income diversity are not the same, they are correlated and, regardless of correlation, their impacts would seem analogous.

Although the studies cited here attempted to control for difference in quality of the programs, the possibility remains that part of the explanation for the higher

performance of low-income children in diversified settings is accounted for by the better quality of those programs.⁵⁸ As is widely recognized, K-12 schools for children from low-income families and minority families tend to be of poorer quality than those for students from higher-income families and non-minority families, and the same is most likely true for pre-K programs. While the peer impact identified in the studies is important, it is also the case that schools that are operated predominantly for low-income or minority families are likely to be of lower quality and therefore have less positive impacts on children’s development. (It might be possible to create programs where there is diversity among the children—by both family income and race—by providing vouchers for children from low-income families, while children from other families pay full fare or pay on a sliding scale.⁵⁹ Yet this is the way most state child care subsidy programs already work, and they generally do not yield centers with economic diverse populations.)



2. *There is no reasonable basis on which to justify treating younger children—four-year-olds, for example—differently from older children—six-year-olds and seven-year-olds, for example—in terms of access.*

Public education, in which all families have access to schooling for their children without making payments, is a well-established principle on which education has operated in the United States for generations. This principle has long applied to children six years old and older, and has been extended in recent years in most states down to five-year-olds. (In some places, “early kindergarten” is available for some four-year-olds.)

The rationale for providing free schooling is well known and need not be elaborated here. However, it is useful to take note of part of the rationale—namely, that society in general gains from having a well-educated populace. Yet the information presented in the earlier parts of this report suggests that quality education has a great impact on children in their early years, *before* they are eligible for free public education—perhaps greater than in any of their later years, when they *are* eligible for free public education. The cut-off line at six seems simply arbitrary, perhaps based on an understanding—or, more accurately, a misunderstanding—of when children are cognitively and socially ready for school. It would seem that the only explanation for providing free universal schooling for children six years old (often five years old) and older but not for younger children is: That’s the way we have always done it.*

* One argument that might be made to justify treating young children differently is that schooling is compulsory for children six years old and older, but no one who advocates government support for pre-K schooling is advocating that it be compulsory. Then, paying for the older children might be justified by the reasoning that: We make them go, so we need to pay for them. But this is a non sequitur, for the main issues are whether or not they are ready to go to school and whether or not society gains from making school available to them. Moreover, kindergarten is generally provided as a free universal program but is not compulsory.

3. *The cost of child care is a severe burden on moderate-income families as well as low-income families.*

As the data in Table 3 demonstrate, for most single-mother families, the cost of placing a four-year-old in a child care center is prohibitively expensive throughout New England (as in most other states). At the median income of single-mother families, the cost ranges from 33.2% of income (New Hampshire) to 44.8% (Massachusetts), more than the typical cost of housing. Many single-mother families would be eligible for some form of support through existing targeted programs, but many at the median income level would not be eligible. Even for two-member families

Table 3. Average annual cost of full-time care for four-year old, 2011 in the New England states

	Total cost		Cost of center care as a % of:			
			State median income		200% of poverty level	
	Child care center	Family child care	Single mother family	Household income***	Family of two	Family of three
Connecticut	\$10,530	\$9,123	34.2%	15.2%	35.8%	28.4%
Maine	\$7,904	\$6,136	36.0%	16.5%	26.9%	21.3%
Massachusetts	\$11,669	\$9,496	44.8%	17.7%	39.7%	31.5%
New Hampshire*	\$9,541	\$8,178	33.2%	14.8%	32.4%	25.7%
Rhode Island	\$9,932	\$9,100	38.8%	17.7%	33.8%	26.8%
Vermont**	\$8,758	\$6,921	34.6%	16.4%	29.8%	23.6%
National##	\$7,551	\$6,380	n.a	14.3%	25.7%	20.3%
Highest cost state	\$11,669 Massachusetts	\$9,620 New York	44.8% New York	20.3% New York	39.7% Massachusetts	31.5% Massachusetts
Lowest cost state	\$3,911 Mississippi	\$4,291 Louisiana#	22.0% Mississippi	10.1% Mississippi	13.3% Mississippi	10.6% Mississippi

*2009 Data, adjusted for inflation

** 2010 Data, adjusted for inflation

*** Median Household Income for 2007-2011 from American Community Survey

Data for Mississippi on Family Child Care are not available.

##National cost figures are unweighted averages of state figures

Source: Child Care Aware of America, Parents and the High Cost of Child Care, 2012 Report, http://www.naccrra.org/sites/default/files/default_site_pages/2012/cost_report_2012_final_081012_0.pdf

(e.g., a mother and one child) with incomes twice the poverty level, the cost of center care in New England states ranges from 26.9% of income (Maine) to 39.7% (Massachusetts). Similarly, for three-person families (e.g., two parents and a child) with incomes at twice the poverty level, center costs range from 21.3% of income (Maine) to 31.5% (Massachusetts). Even for a family with the state median house-

hold income, the cost as a share of income ranges from 14.8% to 17.7% in the New England states. All of these percentage figures, however, are for one four-year-old child. For a family with an infant or more than one child of pre-K age, the percentage cost figures are of course higher.*

4. All social welfare programs targeted at low-income families—that is, means-tested programs—raise two severe problems: a disincentive for families to raise their incomes and the generation of resentment and social division.



The disincentive created by means-tested, targeted programs is a very practical matter for low-income families. Receiving support from various targeted social welfare programs (child care, housing, WIC, etc.), they recognize that efforts to improve their incomes will likely be self-defeating since those income gains will be offset by the loss of eligibility for the targeted support programs. For example, a 2008 Boston study illustrates the problem for a single mother with two children, eight years old and three years old, who obtains training and moves from an \$11 an hour job to a \$16 an hour job. While this mother would gain \$833 per month in wages, she would suffer a loss of \$863 in monthly supports. The mother thus has an incentive to remain in the low-wage job.⁶⁰

Regarding the resentment and social division issue, it is apparent from the data in Table 3 that the burden of child care expenditures is substantial for moderate-income families as well as low-income families. Targeting only the latter for support would often create resentment on the part of the former against the programs *and* also against the beneficiaries of those programs. No matter where the cut-off point is, those above the cut-off point—especially those close to the cut-off point—would tend to feel that they are being treated unfairly. A sense of unfairness is a basis for social division. The problem becomes especially acute when the division is, or is perceived as, along racial lines.^{†61}

5. Educational programs that are for children of families with low-incomes are less likely to be programs that are of high quality.

Experience with K-12 schooling suggests that separation of programs by income levels generally yields poor schooling for children from low-income families—precisely those children for whom high quality programs appear to make the most difference. The provisions of government financial support for the children of low-income families in pre-K programs would not necessarily mean those children

* One might respond to this point by noting that, yes, the costs are high for low-income and moderate income families, but why should the state pay for center care for higher income families? However, both the preceding point (K-12 schooling is free to high income families) and the following point (problems with all means-tested programs) speak to this objection.

† A sliding scale for payments might attenuate the resentment and conflict, but there would seem no more reason to establish a sliding scale for pre-K schooling than there is for K-12 schooling.

would attend separate schools from their more affluent peers. Such an outcome seems likely, however, especially within the context of the current structure of pre-K programs. If schooling—at any level—is to contribute to economic and social equality, the schooling itself needs to be, at least, equal in quality.*

6. Universal early childhood education programs are more likely to have firmer political support than programs targeted at the children of low-income families.

Social programs that serve the population generally—such as Social Security, Medicare, and public education—are widely popular. They are not viewed as “welfare” and are not viewed as serving any particular group. Social services targeted at low-income groups, groups with relatively limited political power, tend to be frequently under attack and their funding tends to be insecure. This point is closely related to the point above regarding social division and the resentment by many middle-income families of the programs that serve only low-income families—and often a resentment of the low-income families themselves. While it may seem questionable to provide social services to high-income families, it would be no more so with early childhood education than with K-12 education.

IV.B. QUALITY VERSUS AVAILABILITY



- Experience with large scale programs—universal or targeted—suggests that such programs have difficulty establishing high quality throughout their operations, especially in the initiation of those programs. Head Start illustrates this difficulty, as does the universal program in Quebec.⁶² On the one hand, this reality suggests that a universal early childhood education program should be phased in, so organizational learning can take place and the program can be most effectively implemented as it expands. On the other hand, phasing in should not be a justification for serious delays; not only does society need high quality early childhood education but society also needs care for children whose parents are in, or need to enter, the paid workforce.

In addition to organizational learning, there are other barriers to rapid development of high quality, large scale early childhood education programs. Perhaps the primary barrier is funding, as state governments would likely resist full funding in one step. There is also the barrier presented by lack of personnel—teachers who have completed higher education with focused training in early childhood education. Clearly, it is not likely that high quality universal early education can be quickly established. In addition, an attempt to do so would run a political risk: if the effort to establish quickly a high quality program did not yield the results on

* It might reasonably be argued that to overcome the existing inequalities in society, the schooling of children from low-income families needs to be of higher quality.

which it was sold to the state government and the public, there could be a backlash against the program.

It is useful then to recognize that a universal program is best developed in stages and that in its early stages, at least, it will not meet the standard of “high quality” for all its component centers.* The goal should probably be three-fold: to provide adequate centers in which parents can be assured that their children are being well-cared for, even if the children are not receiving “high quality” education; to learn from the “experiment” of implementation at the early stages;† and to establish, at every step of the way, policies that will continually raise the quality of the program.

It is useful to keep in mind that, regardless of society’s wishes, people do not expect all K-12 programs to be of “high quality.” The disasters that exist in some K-12 programs should not be accepted, but there is still value in schools that do not meet the “high quality” standard. Similarly, there is value in pre-K programs that do not meet this standard. The minimal goal of “well-cared for” still can provide benefits for the children and their families. As in K-12 schooling, however, such a minimal goal for pre-K makes sense only if it is a temporary goal, increasingly replaced by the goal of “high quality” for all children.

V. A CONCLUDING COMMENT: ECONOMIC DEVELOPMENT AND MORE

This report has emphasized the positive economic development impacts of early childhood education. Those impacts can be considerable. Through its contribution to the enhancement of young children’s cognitive and social/behavioral abilities, high quality early childhood education increases their capacity to make productive contributions to society. It thus lays an important part of the foundation for long-run economic development. In addition, the availability of high quality child care has immediate positive economic impacts by allowing more parents to enter the paid labor force and raising their productivity. For state governments, therefore, expanding support for early childhood education should be high on the list of economic development priorities.

Yet, while the positive contributions to economic development are important, they should not obscure the other major social benefits of high quality early childhood

* It might be argued, even if a universal program is the goal, in the early stages, when care cannot be provided for all children, those children from low-income families should be given priority, i.e., targeted. This is, however, a questionable argument. As has been pointed out, low-income children tend to gain the most in an economically diverse setting; further, the program would have all the problems (noted above) of a targeted program. Perhaps most important, if the program is established as a targeted program, it is likely to entrench economic segregation and may never make the shift to a diverse, universal program.

† Of course, each state does not have to “reinvent the wheel.” Large scale programs already exist in some states and in other countries, and there is also Head Start. Still, while learning from elsewhere is important and can reduce the time it takes to develop an effective program, different contexts require different learning, and learning still takes some time.

education programs. Greater support for these programs is good social policy as well as good economic policy. Of greatest significance, high quality early childhood education can enhance the lives, the whole lives, of children.*

...there are gains to society from high quality early education that go well beyond economic growth.

By contributing to the higher productivity of the children that pass through the programs, early childhood education is enhancing the long-run well-being of those children. To take the extreme case, when people are engaged with the criminal justice system—which appears to be less likely for people who have experienced high quality early childhood education—it is not only costly to society and the government, but in addition both reflects and creates a diminished quality of life for the people who are so engaged.

Furthermore, there are gains to society from high quality early education that go well beyond economic growth. While these gains are likely to enhance economic development, they are valuable in themselves. As noted in earlier sections of this report, these programs contribute to an enhancement of equal opportunity. The evidence indicates that children from low-income families tend to gain the most—in terms of school readiness—from such programs, potentially reducing the education gaps between them and children from higher-income families. Moreover, as emphasized in this report, the benefits to children from low-income families are greatest in a universal program as opposed to a targeted program.

Equal opportunity is also an important factor bringing about more equal economic outcomes.⁶³ Beyond being a positive goal in itself for many people, greater economic equality—or a lesser degree of inequality—has far reaching benefits to society. For example, more economically equal societies tend to have better physical health, less violent crime, less mental illness, fewer teenage pregnancies, and a better natural environment.⁶⁴

The universal provision of high quality early childhood education programs will not solve all of society's economic and social problems, and these programs, in making their positive contributions, are only one element in generating social progress. But early childhood education can be a very important element, making significant contributions to economic development as well as to general social well-being.

* It should be kept in mind that there are many things on which government spends money but which have no obvious direct relation to economic growth and perhaps no close relation to economic development broadly conceived. Much of what is spent on public safety (the police) provides an example.

BOX C. ESTIMATING THE COST OF PROVIDING UNIVERSAL, STATE GOVERNMENT FINANCED EARLY CHILDHOOD EDUCATION OF HIGH QUALITY

With any proposal for state government-funded universal early childhood education—or simply an expansion of early childhood education programs—government officials will reasonably ask: What will it cost? It should be emphasized that (as pointed out in this report) there is every reason to expect not only that the benefits will substantially outweigh the costs, but also that higher quality programs, which will also be higher cost programs, will yield higher rates of return. Nonetheless, the question of costs is both legitimate and important.

Fortunately, considerable work has been done by various organizations and in various states to establish methods for cost estimation. A thorough and useful approach has been established at the Institute for Women’s Policy Research by Stacie Carolyn Golin, Anne W. Mitchell, and Barbara Gault.* The approach of Golin et al. is especially valuable for two reasons:

- It is based on the assumption that the early childhood education program for which costs are being estimated is a high quality program. Accordingly, their work begins with such specifications as: teachers would minimally have a bachelor’s degree in early childhood education, class size would adhere to professional standards of the National Association for the Education of Young Children, funds would be provided for teachers’ professional development, and funds would exist for proper monitoring of the program.
- It sets out, in detail, the equations and variables that would be used to estimate costs. The approach includes 18 equations, covering all aspects of program costs, ranging from a calculation for estimating total annual services costs to estimating materials costs, from estimating monitoring costs to estimating state governance costs.

It would be difficult to find a place better than this IWPR work to begin cost estimation for an early childhood education program in a particular state.

There are, however, other sources to consider. These include work done at the National Center for Children and Families at Columbia University (<http://ccf.tc.columbia.edu/systems02.html>) and work carried out at The Finance Project, a non-profit research, consulting, technical assistance and training firm (<http://www.financeproject.org>).

Also, a useful source on conceptual issues at the foundation of estimating costs for early childhood education programs is H. M. Levin and P. McEwan, *Cost-effectiveness Analysis: Methods and Applications* (Sage Publications: Thousand Oaks, CA, 2001), Chapter 3.

* Stacie Carolyn Golin, Anne W. Mitchell and Barbara Gault, *The Price of School Readiness: A Tool for Estimating the Cost of Universal Preschool in the States*, Institute for Women’s Policy Research, Washington, DC, 2004. <http://www.iwpr.org/publications/pubs/the-price-of-school-readiness-a-tool-for-estimating-the-cost-of-universal-preschool-in-the-states>. An application by the same authors to Illinois illustrates their approach: *The Cost of Universal Access to Quality Preschool in Illinois: A Report to Governor George H. Ryan’s Task Force on Universal Access to Preschool*, Institute for Women’s Policy Research, Washington, DC, 2003, www.iwpr.org/publications/pubs/the-cost-of-universal-access-to-quality-preschool-in-illinois.

NOTES

- ¹ Committee on Integrating the Science of Early Childhood Development, *From Neurons to Neighborhoods: The Science of Early Childhood Development*, Jack P. Skonkoff and Deborah A. Phillips, editors, Board on Children, Youth, and Families, National Research Council and Institute of Medicine (Washington, D.C.: National Academy Press, 2000), p. 5.
- ² Edward Zigler, “A Warning Against Exaggerating the Benefits of Preschool Education Programs” in Edward Zigler, Walter S. Gilliam, and W. Steven Barnett, editors, *The Pre-K Debates: Current Controversies and Issues*, (Baltimore: Paul H. Brooks Publishing Co., and Washington: National Association for the Education of Young Children, 2011), p. 197.
- ³ James J. Heckman, “The Economics of Inequality: The Value of Early Childhood Education” *The American Educator*, Spring 2011, pp. 31 & 33. <http://www.aft.org/pdfs/americaneducator/spring2011/Heckman.pdf>.
- ⁴ Mildred E. Warner, “Recession, Stimulus and the Child Care Sector: Understanding Economic Dynamics, Calculating Impact”⁴ Linking Economic Development and Child Care Research Project, Cornell University, 2009, p. 4. <http://government.cce.cornell.edu/mirror/documents/publications/163.pdf>.
- ⁵ *The NICHD Study of Early Child Care and Youth Development: Findings for Children up to Age 4½ Years* (Washington, D.C.: National Institute of Child Health and Human Development, National Institutes of Health, U.S. Department of Health and Human Services, 2006), p. 12, http://www.nichd.nih.gov/publications/pubs/upload/seccyd_06.pdf.
- ⁶ See the important *From Neurons to Neighborhoods: The Science of Early Childhood Development*, as cited in note 1.
- ⁷ There are important exceptions. In particular, the “Linking Economic Development and Child Care Research Project” at Cornell University has taken a major role in establishing the economic development impact of early childhood education: <http://economicdevelopmentandchildcare.org>.
- ⁸ U.S. Bureau of Labor Statistics, *Women in the Labor Force: A Databook*, Report 1034, December 2011, Table 5, <http://www.bls.gov/cps/wlf-databook-2011.pdf>. These data are not fully compatible with the data in Table 1. The two sets of data use different methodologies and different levels of coverage.
- ⁹ Section III draws on work from the “Linking Economic Development and Child Care Research Project,” cited in note 7.
- ¹⁰ For an introduction to issues in the history of child care in the United States, see Marlys Ann Boschee and Geryl M. Jacobs, “Child Care in the United States: Yesterday and Today,” National Network for Child Care, <http://www.nnce.org/choose.quality.care/ccyesterd.html>, 1998; and Sonya Michel, “The History of Child Care in the U.S.,” The Social Welfare History Project, undated (post-1999), <http://www.socialwelfarehistory.com/programs/child-care-the-american-history/>.
- ¹¹ Edward Zigler, “Putting the National Head Start Impact Study into a Proper Perspective,” A Briefing Paper on the National Head Start Impact Study, National Head Start Association Briefs, DIALOG Briefs, Volume 13 Issue 1, 2010, http://www.nhsa.org/files/static_page_files/970AF2B6-1D09-3519-ADF2A30669852876/14255_Dialog%20Briefs_Spring10_v3.pdf.
- ¹² Janet Currie, “Early Childhood Education Programs,” *Journal of Economic Perspectives*, Vol. 15, No. 2, Spring 2001, p. 217. In this review article, Currie provides a very useful discussion of these early studies—i.e., studies carried out before 2000; this review article serves as the basis for the statements here about these studies.
- ¹³ Currie, as cited in the previous note, pp. 219-220. The article provides references that are not included here. Currie continues from the above quotation with: “Studies of model early intervention programs do not show universally positive results. In particular, studies with nonrandomized designs frequently find insignificant or even wrong-signed effects. However, I believe it is a fair reading of the evidence to say that well-designed studies of intensive educational interventions show that it is possible for intervention to make a positive difference in children’s lives.”
- ¹⁴ Art Rolnick and Rob Grunewald, “Early Childhood Development: Economic Development with a High Public Return,” *The Region*, December 2003, http://www.minneapolisfed.org/publications_papers/studies/earlychild/abc-part2.pdf. Rolnick and Grunewald base their rate of return estimates on the earlier benefit-cost data presented by Lawrence J. Schweinhart et al., *Significant Benefits: The HighScope Perry Preschool Study Through Age 27*, (Ypsilanti, Michigan: HighScope Press, 1993).
- ¹⁵ Clive R Belfield, Milagros Nores, Steve Barnett, and Lawrence Schweinhart, “The High/Scope Perry Preschool Program: Cost-Benefit Analysis Using Data from the Age-40 Followup,” *The Journal of Human Resources*, Vol. 41, No. 1, 2006.
- ¹⁶ Eric A. Hanushek and Alfred A. Lindseth, *Schoolhouses, Courthouses, and Statehouses*, (Princeton: Princeton University Press, 2009) for example, argue that the results of Perry Program studies are not strong, that their estimates of the program’s impacts are fragile—as reported by James J. Heckman et al., “The Rate of Return to the HighScope Perry Preschool Program,” *Journal of Public Economics*, No. 94, 2010, p. 114.

- ¹⁷ James J. Heckman et al., "The Rate of Return..." as cited in the previous note, p. 115. In addition to this study and the other articles explicitly used here, more articles in Heckman's set of early childhood education studies are listed at <http://heckman.uchicago.edu/page/PritzkerConsortium>
- ¹⁸ Heckman et al., "The Rate of Return..." pp. 115-116, as cited in note 16.
- ¹⁹ James J. Heckman, "The Economics of Inequality: The Value of Early Childhood Education," *American Educator*, Spring 2011, pp. 34-35. Heckman actually cites a figure of 5.8% per year for the stock market returns. The source of that lower figure, however, was a paper that was later revised with the figure changed to 6.9%. See, J. Bradford DeLong and Konstantin Magin, "The U.S. Equity Return Premium: Past, Present, and Future," *Journal of Economic Perspectives*, Volume 23, Number 1, Winter 2009, Pages 194. The data for the 6.9% figure are from Robert Schiller, <http://www.econ.yale.edu/~shiller/data.htm>.
- ²⁰ Heckman, as cited in the previous note.
- ²¹ Some 250 publications emanating from the study are listed on the NICHD web site at <http://www.nichd.nih.gov/research/supported/secycd/biblio.cfm>. Funding for the study ended in 2009, but additional analyses based on the data have continued.
- ²² The NICHD Study as cited in note 5.
- ²³ U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research and Evaluation, *Head Start Impact Study Final Report*, January 2010. The report, the executive summary, and various related materials are available at http://www.acf.hhs.gov/programs/opre/hs/impact_study/.
- ²⁴ See, for example, David B. Muhlhausen and Dan Lips, *Head Start Earns an F: No Lasting Impact for Children by First Grade*, Background No. 2363, The Heritage Foundation, January 21, 2010, <http://www.heritage.org/research/reports/2010/01/head-start-earns-an-f-no-lasting-impact-for-children-by-first-grade>. Also: William A. Estrada and Melanie Palazzo, *Head Start to Nowhere? Home School Legal Defense Association*, February 3, 2010, http://www.hslda.org/docs/nche/Issues/E/HeadStart_Feb_3_2010.asp.
- ²⁵ *Head Start Impact Study Final Report*, p. xiii.
- ²⁶ *Head Start Impact Study Final Report*, chapter 2. The Heritage Foundation publication cited in note 24 above, however, states that the study used 41 cognitive measures and 40 social-emotional measures. If so, these are not readily identified in the report.
- ²⁷ *Head Start Impact Study Final Report*, p. 9-4.
- ²⁸ *Head Start Impact Study Final Report*, p. 9-5.
- ²⁹ *Head Start Impact Study Final Report*, p. 3-7. Also on the matter of quality, see the comment by Zigler quoted in Section II above with the reference cited in note 11.
- ³⁰ In Bridgeport, CT, Portland, ME, Boston, MA, Burlington, VT, and Manchester, NH, the average salary for Head Start teachers is 59.5% of the average salary for kindergarten teachers. In Providence, RI, the ratio is 51.3%. Data are from the web site <http://teacherssalary.net>.
- ³¹ In general, during the study, to be eligible for Head Start, a child had to be living in a family whose income was below the Federal poverty line. More recently, since the 2007 reauthorization of Head Start, programs may serve up to 35 percent of their enrollment from children whose families' incomes are below 130 percent of the poverty line. *Head Start Impact Study Final Report*, p. 1-2.
- ³² Currie, as cited in note 12, p. 225, writes that work in Chicago provides "evidence that Head Start children often go on to attend poor schools...[which] suggest[s] that the fading out of Head Start gains among African American children may be due not to deficiencies in the Head Start program but to problems of subsequent school quality."
- ³³ *Head Start Impact Study Final Report*, p. xxii. However, the Report continues: "Most children in both the Head Start and control groups attended public schools of middle quality as measured by student proficiency on state assessments in math and reading."
- ³⁴ The Head Start children in the study were in significantly higher quality programs than were children in the control group. Nonetheless, see the comments in the text regarding quality of Head Start.
- ³⁵ Currie, as cited in note 12, p. 224.
- ³⁶ The studies of the Chicago program, as cited by Currie, are Arthur Reynolds, "Extended Early Childhood Intervention and School Achievement: Age Thirteen Findings from the Chicago Longitudinal Study," *Child Development*, Vol. 69, No.1, 1998, pp. 231-46; and Judy Temple, Arthur Reynolds and Wendy Miedel, "Can Early Intervention Prevent High School Dropout?" *Urban Affairs*, March, Vol. 35, No. 1, March 2000, pp. 31-56. According to Currie (p. 224), in the Temple et al. study, "the size of the [favorable] effect [on the dropout rate] grows with the time that children spent in the program." The Chicago studies, however, did not have randomly established control groups.
- ³⁷ As cited in note 2.

- ³⁸ James J. Heckman, “Effects of Child-Care Programs on Women’s Work Effort,” *Journal of Political Economy*, Vol. 81, No. 2, Part 2, March/April, pp. 136-63, 1974.
- ³⁹ Rachel Connelly, “The Effect of Child Care Costs on Married Women’s Labor Force Participation,” *The Review of Economics and Statistics*, Vol. 84, No. 1, February, p. 89, 1992.
- ⁴⁰ Pierre Lefebvre and Philip Merrigan, “Low-fee (\$5/day/child) Regulated Childcare Policy and Labor Supply of Mothers with Young Children: A Natural Experiment from Canada,” Centre interuniversitaire de recherche en analyse des organisations, Montreal, March 2005, p. 21, <http://ideas.repec.org/p/cir/cirwor/2005s-09.html>. A study of the consequences of the city of Zurich, Switzerland’s provision of affordable day care showed a much larger impact—that the rate of hours worked by mothers almost doubled; see K. Müller Kucera and T. Bauer, *Costs and Benefits of Child care Services in Switzerland – Empirical Findings from Zurich*, 2001, as cited in *Starting Strong II: Early Childhood Education and Care*, Organisation for Economic Cooperation and Development (OECD), 2006, p. 251.
- ⁴¹ Michael Baker et al., “Universal Child Care, Maternal Labor Supply, and Family Well-Being,” *Journal of Political Economy*, Vol. 116, No. 4, 2008, p. 725.
- ⁴² The data are from the Census’ Current Population Survey, Table 1A: Child Care Arrangements of Preschoolers Under 5 Years Old Living with Mother, by Employment Status of Mother and Selected Characteristics: Spring 2010, www.census.gov/hhes/childcare/data/sipp/2010/tab01A.xls. The table does not report child care arrangements by income level, but it does report arrangements by education level. In the category “less than high school,” 69% of child care is with a relative, and in the category “high school graduate [but no more]” 53% of care is with a relative. Also, the data suggest that in the case of single mothers, there is sometimes reliance on siblings for care of younger children, suggesting that one category of beneficiaries of a universal pre-K program would be older children. According to one analysis: “Welfare-to-work demonstration programs have found harmful effects of maternal employment on adolescents’ educational attainment, with one conjecture being that older children (especially daughters) in these families must assume the burden of caregiving for younger siblings. This caregiving responsibility interferes with schooling by increasing tardiness or absences.” Yelizavetta Kofman and Suzanne M. Bianchi, “Time use of youths by immigrant and native-born parents: ATUS results,” *Monthly Labor Review*, June 2012, p. 5.
- ⁴³ Perhaps the most widely cited report on this issue of parental-productivity is Karen Shellenback, *Child Care & Parent Productivity: Making the Business Case*, Linking Economic Development and Child Care Research Project, Cornell University, December 2004. <http://government.cce.cornell.edu/doc/pdf/childcareparentproductivity.pdf>. This is a useful source, providing helpful information and analysis. Shellenback states: “Quality child care for employees is important to employers because it improves productivity, reduces absenteeism, cuts turnover... and can increase company value.” Yet, insofar as the claim is supported by empirical evidence, that evidence appears to be mostly, if not entirely, from situations where employers provide the day care and/or subsidize the day care—which would be much more likely to induce workers’ positive feelings toward their jobs (and thus yield improved productivity) than would equal quality care provided in a way that is unrelated to the companies where they work.
- ⁴⁴ *Working Parents for a Working New York*, prepared by K.C. Wagner, Principal Investigator, Cornell and New York Child Care Coalition, available at the Cornell University, Linking Economic Development and Child Care Research Project web site: http://economicdevelopmentandchildcare.org/documents/technical_assistance/work_life/working_parents.pdf.
- ⁴⁵ Bradley Googins and Dianne Burden, “Vulnerability of Working Parents: Balancing Work and Home Roles,” *Social Work*, Vol. 32, No. 4, July/August, 1987, pp. 295-300.
- ⁴⁶ Ellen E. Kossek and Cynthia Ozeki, “Bridging the work-family policy and productivity gap: a literature review,” *Community, Work & Family*, Vol. 2, No. 1, 1999, pp. 7-32. While the studies reviewed by Kossek and Ozeki establish a negative relationship between work-family conflict and job performance, the degree of this relationship varies greatly among the studies.
- ⁴⁷ K. Müller Kucera and T. Bauer, referred to by *OECD Starting Strong II*, as cited in note 40.
- ⁴⁸ For reviews of the studies on employer provided and employer supported child care programs, see Taryn W. Morrissey and Mildred E. Warner, “Why Early Care and Education Deserves as Much Attention, or More, than Prekindergarten Alone,” *Applied Development Science*, Vol. 11, No. 2, 2007, pp. 57–70, and Karen Shellenback, *Child Care & Parent Productivity*, as cited in note 43.
- ⁴⁹ See, in particular, Zhilin Liu, Rosaria Ribeiro and Mildred Warner. “Comparing Child Care Multipliers in the Regional Economy: Analysis from 50 States, Linking Economic Development and Child Care Research Project,” <http://government.cce.cornell.edu/doc/pdf/50States.pdf>, 2004. Also, Mildred E. Warner, “Recession, Stimulus and the Child Care Sector...” as cited in note 4
- ⁵⁰ Liu, Ribeiro and Warner, as cited in the previous note, p. 71.
- ⁵¹ Mildred E. Warner, “Recession, Stimulus and the Child Care...” as cited in note 4.
- ⁵² A useful presentation of these controversies is *The Pre-K Debates*, as cited in note 2.
- ⁵³ In addition to the studies cited in the following paragraphs, several other studies, of experience both in the United States and other countries, supporting this general point are cited by W. Steven Barnett, also arguing for universal

programs: “Four Reasons the United States Should Offer Every Child a Preschool Education,” in Zigler et al. as cited note 2.

⁵⁴ Carlota Schechter and Beth Bye, “Preliminary evidence for the impact of mixed-income preschools on low-income children’s language growth,” *Early Childhood Research Quarterly*, 22, 2007, pp. 137–146.

⁵⁵ Andrew J. Mashburn et al., “Peer Effects on Children’s Language Achievement During Pre-Kindergarten,” *Child Development*, Volume 80, Number 3, May/June 2009, pp. 686–702.

⁵⁶ Gary T. Henry and Dana K. Rickman, “Do peers influence children’s skill development in preschool?” *Economics of Education Review*, 26, 2007, pp. 100–112.

⁵⁷ Catherine L. Horn and Michal Kurlaender, “The End of Keyes—Resegregation Trends and Achievement in Denver Public Schools,” Cambridge, MA: The Civil Rights Project at Harvard University, April 2006, <http://civilrightsproject.ucla.edu/research/k-12-education/testing-and-assessment/the-end-of-keyes2014resegregation-trends-and-achievement-in-denver-public-schools/?searchterm=horn>; and Roslyn Arlin Mickelson, “The Academic Consequences of Desegregation and Segregation: Evidence from the Charlotte-Mecklenburg Schools,” Paper prepared for the Conference on the Resegregation of Southern Schools, August 29-30, 2002, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, August 15, 2002, [http://civilrightsproject.ucla.edu/research/k-12-education/integration-and-diversity/the-academic-consequences-of-desegregation-and-segregation-evidence-from-the-charlotte-mecklenburg-schools/?searchterm=The Academic Consequences of Desegregation and Segregation](http://civilrightsproject.ucla.edu/research/k-12-education/integration-and-diversity/the-academic-consequences-of-desegregation-and-segregation-evidence-from-the-charlotte-mecklenburg-schools/?searchterm=The%20Academic%20Consequences%20of%20Desegregation%20and%20Segregation).

⁵⁸ As Schechter and Bye, cited in note 54, state, p. 144: “The most problematic variable in this study was program quality. Every attempt was made to select the highest quality programs but there may have been subtle differences in dimensions of program quality that should be accounted for in future studies.”

⁵⁹ Art Rolnick and Rob Grunewald, “The Economic Case for Targeted Preschool Programs,” in Zigler et al., as cited in note 2, make this argument.

⁶⁰ R. Loya, R. Liberman, R. Albelda and E. Babcock, *Fits & Starts: The difficult path for working single parents*, Boston, MA: Crittenton Women’s Union and The Center for Social Policy at the McCormack Graduate School, University of Massachusetts, Boston, 2008, www.mccormack.umb.edu/centers/csp/documents/FitsStarts_FINAL-REV_103108.pdf.

⁶¹ For elaboration of these points, see Chapter 10 in Arthur MacEwan and John A. Miller, *Economic Collapse, Economic Change: Getting to the Roots of the Crisis* (Armonk, NY: M.E. Sharpe Publishers, 2011).

⁶² Baker et al., as cited in note 41, find some evidence of social/behavioral problems of children in the Quebec program. However, they qualify these findings, noting that they may be a reporting artifact or a consequence of the initial stages of the Quebec program.

⁶³ It is well known that over the past several decades, the United States has become increasingly economically unequal. What is less well recognized is that social mobility in the country has declined over this same period, and U.S. social mobility is relatively low among high income countries. See, for example, Jo Blanden, Paul Gregg and Stephen Machin, *Intergenerational Mobility in Europe and North America*, A Report by the Sutton Trust, Centre for Economic Performance, London, April, 2005, <http://cep.lse.ac.uk/about/news/IntergenerationalMobility.pdf>; also Daniel Aaronson and Bhashkar Mazumder, “Intergenerational Economic Mobility in the U.S., 1940 to 2000,” *Journal of Human Resources*, Vol. 43, No. 1, 2008, pp. 139-172.

⁶⁴ For substantiation and elaboration of this point, see Richard Wilkinson and Kate Pickett, *The Spirit Way: Why Greater Equality Makes Societies Stronger* (New York: Bloomsbury Press, 2009). Also, on the impact of economic inequality on the environment, see, for example, James K. Boyce, “Is Inequality Bad for the Environment?” Political Economy Research Institute, University of Massachusetts, Amherst, Working Paper 135, April, 2007, http://www.peri.umass.edu/fileadmin/pdf/working_papers/working_papers_101-150/WP135.pdf.

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