

ASPE RESEARCH BRIEF

OFFICE OF THE ASSISTANT SECRETARY FOR PLANNING AND EVALUATION

OFFICE OF HUMAN SERVICES POLICY - U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

THE SHORT- AND LONG-TERM IMPACTS OF LARGE PUBLIC EARLY CARE AND EDUCATION PROGRAMS

Introduction

Research consistently finds that high-quality early care and education (ECE) programs promote children's school readiness and other positive outcomes. This brief describes what's known about the short- and long-term impacts of large public (i.e., at-scale) ECE programs in the United States for children prior to kindergarten entry – including what key features of programs lead to the best outcomes, and how to sustain program benefits as children grow older. This brief does not include the many smaller ECE programs, including model or demonstration programs in the U.S. and abroad, that have also been evaluated; please see other reports for information on the short- and long-term impacts of these programs.¹

What are the short-term impacts of early care and education programs on children's outcomes?

Research indicates that one or more years of high-quality, developmentally appropriate early care and education (ECE) improves a range of children's outcomes, including language, literacy, and numeracy skills, when measured at the end of the program or soon after.² These findings are consistent across small demonstration programs, such as the well-known Perry Preschool and Abecedarian programs, which have shown very large effects,³ as well as among large-scale public programs such as public pre-K and Head Start programs.⁴ The large-scale public programs have shown positive but more modest short-

term effects, but they were also, in general, less costly or intensive, and served a broader range of children.

Relatively recent research on the impact of high-quality prekindergarten programs on children's outcomes is quite strong, providing evidence for both short- and long-term impacts of meaningful magnitude. Pre-K yields large short-term effects on academic measures of school readiness (e.g., cognition, language), and some studies show that pre-K programs improve social-emotional development.⁵ For example, research on Oklahoma's universal prekindergarten program in Tulsa indicates that children who attended pre-K were advanced on pre-reading skills by 9 months, pre-writing skills by 7 months, and pre-math skills by 5 months, compared to similar children who did not participate.⁶ The Tulsa study also found more modest gains in social-emotional development, including higher attentiveness and lower timidity (but not differences in other aspects of problem behavior).⁷ Likewise, a recent study of Boston's city-wide prekindergarten program found moderate to large effects on children's language, literacy, numeracy, and math skills, and smaller impacts on children's executive functioning and emotion recognition.⁸ In Tennessee's pre-K program, participating children scored about one-third of a standard deviation higher on cognitive tests than non-participants at the end of the pre-K year.⁹ Further, research indicates that Head Start participation is associated with increased receipt of health screenings, immunizations, and dental exams,¹⁰ and a small

ABOUT THIS RESEARCH BRIEF

This ASPE Research Brief presents a summary of what is known about the impacts of high-quality public early care and education programs on children's development.

The content originated at research meetings convened by Deborah Phillips at the Foundation for Child Development and Georgetown University. The brief was prepared by ASPE's Taryn Morrissey, Lindsey Hutchison, and Kimberly Burgess, with substantial input from David Deming and William Gormley.

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decrease in body mass index (BMI) over the course of the academic year¹¹ (full-day programs were found to contribute to larger reductions in obesity than half-day programs, by about 4 percentage points).¹² The recent Head Start Impact Study (HSIS) found small to modest benefits for school readiness skills (e.g., language, cognition) and social-emotional skills (e.g., hyperactive and withdrawn behaviors for the 3-year-old cohort only) at the end of the Head Start year, although by 1st and 3rd grade, these impacts were mixed or mostly diminished.¹³

What are the long-term impacts of early care and education programs on children's outcomes?

While studies consistently find that ECE participation has positive impacts on children's outcomes at program's end, only a few have longitudinal data available to assess long-term outcomes.

In general, differences attributable to program participation on measures of achievement diminish or disappear during elementary and secondary schooling. However, despite the convergence of scores on measures of academic achievement, multiple studies show long-term effects on important life outcomes in late adolescence or early adulthood. For example, children who attend Head Start have higher rates of high school completion, college attendance, and employment, as well as decreases in behavior problems, grade retention, and criminal activity, when compared to similar children who did not attend Head Start.¹⁴ Overall, Head Start attendance results in an increase of nearly one-quarter of a standard deviation (.23 SD) across an index of outcomes, equivalent to about one-third of the gap between Head Start participants and other children that existed prior to participation. The projected gains in earnings associated with program attendance more than offset the costs of the program, resulting in a positive benefit/cost ratio for Head Start.¹⁵ Head Start may also show long-term impacts on health outcomes¹⁶, particularly large reductions in obesity¹⁷ and on the likelihood of smoking.¹⁸

Because documenting long-term impacts require longitudinal studies and measures taken decades after participation, to date, we lack information on the long-term impacts of public pre-K programs. A small number of model, intensive ECE programs with available longitudinal data demonstrate large long-term impacts. For example, evaluations of two well-known ECE programs, the Perry Preschool and the Carolina Abecedarian projects, show very large initial impacts on educational achievement, and very large

effects on schooling and earnings during adulthood.¹⁹ Likewise, the Chicago Child-Parent Centers study also shows substantial short-term effects on educational achievement, plus long-term reductions in crime and substance abuse and long-term improvements in high school graduation rates and adult earnings.²⁰

What do we know about the "fadeout" or "catch-up" phenomena in terms of sustaining impacts?

"Fadeout" of ECE impacts refers to the diminishing effect sizes of ECE attendance on children's test scores over time, as children age. One possible explanation for fadeout may be that non-participating children actually "catch up" over time, suggesting that the term "convergence" may be more appropriate.²¹ Some research suggests that fadeout may occur at a faster rate among children who go on to attend lower-quality schools,²² although other recent research suggests fadeout occurs at a slower rate in low-achieving schools.²³ The initial achievement gains from Head Start also fadeout at a faster rate for African-American children, who (on average) attend lower-quality schools.²⁴

The pattern of (1) initial impacts on test scores, (2) convergence or "fadeout" over time, and (3) significant long-term gains on important adult outcomes was found in evaluations of Perry Preschool, Carolina Abecedarian, Head Start, and even the Tennessee STAR kindergarten class size reduction experiment,²⁵ indicating that the convergence of test scores and yet long-term gains in adult outcomes is a robust pattern in ECE interventions. In the case of Head Start, children who exhibited the greatest fadeout of ECE impacts actually experienced the largest impacts as adults. Specifically, the children who showed large initial test score gains at ages five and six and diminished impacts at ages 11 and 14 exhibited larger outcomes in adulthood, relative to other Head Start participants²⁶, suggesting that initial test score gains may be a better predictor of long-term outcomes than interim test scores. Further, while this study found no difference in test scores during middle childhood, Head Start participants were much less likely to repeat a grade or be diagnosed with a learning disability. This suggests other indicators may be more useful than interim test scores as predictors of long-run impacts. Moreover, these indicators, such as grade retention, often have cost implications themselves.

How does participation in education during early childhood affect long-term outcomes?

Much remains unknown about the mechanisms underlying this pattern of convergence, as it is possible that there are different causal pathways for the short- and long-term effects. One possible pathway through which ECE programs may have long-term impacts is through changes in children's behavior, particularly in their approaches to learning such as increased self-regulation and attention skills, that they carry through life.²⁷ Another potential mechanism through which ECE programs may have long-term impacts is through changes in parenting quality or practices. For example, secondary analysis of data from the HSIS revealed persistent impacts on parents' involvement with children's schooling several years later.²⁸ Additionally, Head Start, as well as the small model ECE programs, place programmatic emphasis on increased parental education and involvement.²⁹ Because socioeconomic differences in the home environment, parenting, and parents' involvement in education account for a substantial portion of the income achievement gap,³⁰ changes in parenting could help narrow this gap. Moreover, evidence suggests that there may be beneficial spillover effects of Head Start participation on young siblings,³¹ which may be the result of changes in parenting. Finally, as mentioned above, the quality of the K-12 schools that ECE participants attend may help sustain earlier gains, although the research on this is mixed.³²

Do all children benefit from high-quality early care and education? Do some children benefit more?

Research on universal ECE programs in Tulsa, Boston, and Tennessee suggests that attending high-quality ECE benefits all children, including children of all racial, ethnic, and income groups. However, pre-K attendance is especially beneficial to the most disadvantaged children and children from certain ethnic-minority groups.³³ For example, in Tulsa, compared to their control group peers, children from poor families were 11 months ahead, children from near-poor families were 10 months ahead, and children from middle-class families were 7 months ahead upon entering kindergarten after attending pre-K.³⁴ Likewise, in Boston, both children from low-income (defined as eligible for free- or reduced-price lunch) and middle-class families experienced gains in language, literacy, and mathematics outcomes, but low-income children exhibited greater gains. Further, gains in

inhibitory control and attention shifting were accrued almost entirely by low-income children.³⁵ In both Boston and Oklahoma, Latino/Hispanic children exhibited larger gains in letter-word identification from pre-K attendance than their Asian, Black, or White peers. Similarly, in Tennessee, English Language Learners (most of whom were Hispanic) exhibited larger cognitive gains than their native English-speaking peers.³⁶

What are the key features of high-quality early care and education programs?

ECE programs are often "packages" of services in that they are multi-faceted, and serve children and families in a variety of different ways, making it difficult to determine exactly which components are important to outcomes (e.g., full- or part-day programming for children, specific classroom or teacher preparation activities, parent education or involvement components). However, we know that stimulating, supportive teacher-child interactions constitute the most important aspect of a high-quality ECE program. Structural features of the environment, or features that can be directly regulated by program requirements or standards, such as group size, teacher-child ratio, and teacher education and professional development, can facilitate – but do not assure – that such positive teacher-child interactions will occur.³⁷ The use of an evidence-based, developmentally-focused and intensive curriculum, the inclusion of strong instructional support or professional development (e.g., in-class coaching or mentoring), and more classroom time spent on task are also common features of effective programs.³⁸

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