

# Research on [early childhood education](#) outcomes

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The Public Policy Forum welcomes comments and suggestions of additional studies to be included in this matrix. Please contact us at: [adickman@publicpolicyforum.org](mailto:adickman@publicpolicyforum.org)

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Key	
	Outcome significant
	Outcome measured, but not significant
	Outcome not measured

Longitudinal Studies <a href="#">(source information)</a>	Cognitive (IQ)	Behavioral (delinquency, crime)	Sociability (teacher and parent ratings)	<a href="#">Educational</a> (achievement, high school graduation, special education, grade retention)	External Benefits to Society (reduced welfare use, greater incomes and more taxes generated)	Benefit-Cost Ratio
<a href="#">Does prekindergarten improve school preparation and performance?</a> (2007) Magnuson et al.	positive effects on cognitive skills that fade after first grade but are more persistent for disadvantaged children	increased aggressive behavior seen for pre-kindergarten participation	increased aggressive behavior seen in pre-kindergarten participants	improved math and reading skills seen for pre-kindergarten participants		
<a href="#">Comparative benefit-cost analysis of the Abecedarian program and its policy implications</a> (2007) Barnett & Masse	positive effects on IQ were seen through age 21	no statistically significant effect on crime		reduced grade retention; reduced special education enrollment; increased HS completion; higher rate of 4 year college attendance	reduced welfare use; higher lifetime earnings for program participants; greater labor force participation by mothers of program participants	2.5 to 1 benefit-cost ratio for Abecedarian program
<a href="#">Benefits and costs of investments in preschool education: Evidence for the Child-Parent Centers and related programs</a> (2007) Temple & Reynolds	mentions "cognitive advantage" provided by Child-Parent Centers	reduced crime		Child Parent Centers: reduced grade retention, increased high school completion rates	reduced crime costs; higher earnings for program participants	benefit-cost ratios for Child-Parent Centers range from 5.98 to 1 to 10.15 to 1
<a href="#">The Benefits and Costs of Head Start</a> (2007) Ludwig, Jens & Deborah Phillips	positive effects for ages 3 and 4			implies that there would be positive impacts on test scores and reduced grade retention	"plausible case that short-term effects on achievement scores might be large enough for Head Start to pass a benefit-cost test"	Long-term benefits to society are estimated to be positive.
<a href="#">The High/Scope Perry Preschool Program: Cost-Benefit Analysis Using Data from the Age-40 Follow-up</a> (2006) Bellfield et al.		lower crime rates for program participants		increased educational achievement for program participants	increased tax revenue from increased wages; reduced societal costs due to crime; mixed effects of welfare use	12.9 to 1 benefit-cost ratio (benefits to general public divided by cost of program)
<a href="#">Early Intervention and Juvenile Delinquency Prevention: Evidence from the Chicago Longitudinal Study</a> (2006) Mann & Reynolds		reduced juvenile delinquency seen for Child-Parent Centers				
<a href="#">Head Start Impact Study First Year Findings</a> (2005) Westat, Urban Institute and others	small positive effects on some test measures.		improvement in problem behaviors, but no significant effects for other social measures			
<a href="#">Sustained Effects of High Participation in an Early Intervention for Low-Birth-Weight Premature Infants</a> (2003) Hill et al.	positive and lasting IQ effects	no statistically significant effects on behavioral competence				
<a href="#">Modeling the Impacts of Child Care Quality on Children's Preschool Cognitive</a> (2003) NICHD Early Child Care Research Network & Greg J. Duncan	Increased cognitive test scores when family and maternal characteristics are controlled for.		child temperament used as a control variable.	one standard deviation change in quality of care-giving environment is associated with an increase in achievement scores		
<a href="#">Age 21 Cost-Benefit Analysis of the Title I Chicago Child-Parent Centers</a> (2002) Reynolds et al.	positive effects on cognitive skills seen at kindergarten entry	reduced juvenile arrests for program participants		reduced grade retention, reduced special education enrollment, increased HS completion, increased test scores	increased lifetime earnings; effects on welfare participation were not estimated	7.14 to 1 benefit-cost ratio (measured and projected benefits); 3.85 to 1 benefit-cost ratio (only benefits to society included)
<a href="#">The Relation of Preschool Child-Care Quality to Children's Cognitive and Social Developmental Trajectories through Second Grade</a> (2001) Peisner-Feinberg et al.	positive and lasting effects on cognitive and attention skills are seen for high quality child care	reduced problem behavior seen in participants in high quality preschools	improved social skills for children with early relationships with caregivers	long-term improvement in language and math ability associated with high quality early childhood care		
<a href="#">Cognitive and School Outcomes for High-Risk African-American Students at Middle Adolescence: Positive Effects of Early Intervention</a> (1995) Campbell & Ramey	positive and lasting effect on IQ		no statistically significant effects of preschool on behavior or social development	improved test scores and reduced likelihood of grade retention for preschool participants		

<a href="#">The Effects of Early Education Intervention on Maternal Employment, Public Assistance, and Health Insurance: The Infant Health Development Program (1994) Brooks-Gunn et al.</a>				no significant effect on maternal education	increased labor force participation by program mothers; <b>increased</b> use of public assistance and health care services	
Reviews and Meta-analyses <a href="#">(source information)</a>	Cognitive (IQ)	Behavioral (delinquency, crime)	Sociability (teacher and parent ratings)	Educational (achievement, high school graduation, special education, grade retention)	External Benefits to Society (reduced welfare use, greater incomes and more taxes generated)	Benefit-Cost Ratio
<a href="#">Early Childhood Education For All: A Wise Investment (2005) Calman &amp; Tarr-Whelan</a>	positive effect on IQ and achievement for Abecedarian participants	reduced crime rates seen for children receiving quality early childhood education	improved social skills seen in children participating in high quality early childhood care	reduced special education enrollment and grade retention, improved school readiness and language and number skills	increased earnings for program participants will lead to increased income tax revenue; decreased welfare use is also seen for program participants	up to a 13 to 1 benefit-cost ratio
<a href="#">The Productivity Argument for Investing in Young Children (2005) Heckman &amp; Masterov</a>	positive effect on IQ for girls in very early intervention Abecedarian program	reduced crime and delinquency; improved behavior; motivation and self-control		improved achievement test scores, reduced grade retention and special education enrollment, increased high school graduation rates	increased employment and reduced welfare dependence for participants	benefit-cost ratios are 9 to 1 for Perry and 8 to 1 for Chicago CPC
<a href="#">Early Childhood Research Digest #2 What We Know about Pre-Kindergarten Outcomes for Children: The Top 10 Findings from Early Childhood Research (2004) Adams et al.</a>	positive IQ and developmental effects that tend to fade over time	reduced delinquency for Perry Preschool and Chicago Child Parent Centers; inconclusive results for general state programs	improved social competence	reduced grade retention; increased graduation rates for high quality, intensive programs only		
<a href="#">The Universal vs. Targeted Debate: Should the United States Have Preschool for All? (2004) Barnett, Brown &amp; Shore</a>	positive effects on cognitive development seen for preschool children	reduced crime is an hypothesized effect of quality preschool	improved social development and school readiness for children in high quality preschool	mixed achievement effects; decreased grade retention		
<a href="#">A New Framework for Assessing the Benefits of Early Education: A Working Paper by the Committee for Economic Development (2004) Ehrlich &amp; Kornblatt</a>	positive IQ effects that fade over time	reduced crime rates seen for preschool participants	increased likelihood of healthy, socially positive behaviors in preschool participants		increased tax revenue as a result of higher wages; reduced use of welfare or other income assistance programs	Perry: 5.6 to 1 benefit-cost ratio (using 5% discount rate); Abecedarian: 2.2 to 1 benefit-cost ratio (using 5% discount rate)
<a href="#">Predicting Children's Competence in the Early School Years: A Meta-Analytic Review (2000) La Paro &amp; Pianta</a>	positive effect on IQ is seen for time spent in high quality child care					
<a href="#">A Critical Meta-analysis of All Evaluations of State-Funded Preschool from 1977 to 1998: Implications for Policy, Service Delivery and Program Evaluation (2000) Gilliam &amp; Zigler</a>	short-term positive effects on cognitive development	no statistically significant effects (for most programs)	no significant positive effects on social development	most evaluations show statistically significant improvement on academic achievement tests		
<a href="#">Long-term effects of early childhood programs on cognitive and school outcomes (1995) Barnett</a>	large positive effects on IQ through early childhood	long-term reduced delinquency and crime	improved socialization seen	decreased grade retention; increased HS graduation; reduced special education enrollment	reduced crime; reduced welfare use	7.2 to 1 benefit-cost ratio (total benefits to general public divided by preschool cost)
<a href="#">Effects of Early Intervention on Intellectual and Academic Achievement:</a>	positive and lasting effects on IQ for Abecedarian program		preschool is hypothesized	reduced special education		
<a href="#">Innate Talents (1994) Campbell &amp; Ramey</a>	show lasting IQ effects		development	retentions	External Benefits to Society	Benefit Cost Ratio
Cross-sectional studies <a href="#">(source information)</a>	Cognitive (IQ)	Behavioral (delinquency, crime)	Sociability (teacher and parent ratings)	Educational (achievement, high school graduation, special education, grade retention)	External Benefits to Society (reduced welfare use, greater incomes and more taxes generated)	
<a href="#">How much is too much? The influence of preschool centers on children's social and cognitive development (2007) Loeb et al.</a>	positive effects on reading and math scores	reduced delinquency for children participating in Chicago Child-Parent Centers	increased negative behavioral effects found for preschool participants			
<a href="#">The Effects of Universal Pre-K on Cognitive Development (2005) Gormley et al.</a>	positive effects on IQ and achievement test scores		improved school readiness	improved achievement test scores		
<a href="#">The Effectiveness of Early Head Start for 3-Year-Old Children and Their Parents: Lessons for Policy and Programs (2005) Love et al.</a>	positive effects for cognitive and language development		improved social-emotional development; reduced aggressive behavior			
<a href="#">An Economic Analysis of Investments in Early Childhood Education in Massachusetts</a>		reduced delinquency; reduced pregnancy rates		assumes short-term improvement in academic achievement, higher graduation rates, fewer	increased tax revenue from parents of preschool children; increased wages for program	1.18 to 1 benefit-cost ratio

(2004) Belfield & McEwan			special education placements and decreased grade retention	participants; reduced welfare dependency
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