

Promoting Health Equity through Education Programs and Policies: Early Childhood Education

Summary Evidence Table - Economic Review

State and District Programs

Study	Study Characteristics	Intervention Costs	Intervention Benefits	Economic Summary Measure (2014 US\$)
<p>Author (Year): Washington State Institute for Public Policy (2014)</p> <p>Study Design: Modeling</p> <p>Economic Method: Cost-Benefit Analysis</p>	<p>Location: Washington State ECEAP</p> <p>Population: 8,391</p>	<p>Cost (Funding) per child (less difference in child care subsidies between students in ECEAP and not in ECEAP): \$7,190.94</p>	<p>Benefits included earnings from high school education, crime reduction, grade repetition and special education savings, and health care cost savings (with adjustment for deadweight cost of the program)</p> <p>Value of earnings gains per child = \$26,791.26</p> <p>Value of total benefits per child = \$30,118.64 (DW adjustment applied)</p>	<p>Net benefit per child = \$22,927.70</p> <p>Benefit-to-cost ratio (earnings gains only): 3.73</p> <p>Benefit-to-cost ratio (all benefits): 4.19</p>
<p>Author (Year): Washington State IPP (2015)</p> <p>Study Design: Modeling</p> <p>Economic Method: Cost-Benefit Analysis</p>	<p>National estimates (costs from state & district programs in 40 states and benefits based on national labor market estimates)</p>	<p>Cost (Funding) per child (less difference in child care subsidies between program and non-program students): \$5,719.30</p>	<p>Benefits included earnings from high school education, crime reduction, grade repetition and special education savings, and health care cost savings (with adjustment for deadweight cost of the program)</p> <p>Value of earnings gains per child = \$25,128.12</p> <p>Value of total benefits per child = \$30,490.72</p>	<p>Net benefit per child = \$24,771.42</p> <p>Benefit-to-cost ratio (earnings gains only): 4.39</p> <p>Benefit-to-cost ratio (all benefits): 5.33</p>
<p>Author (Year): Cascio (2013)</p> <p>Study Design: Modeling</p> <p>Economic Method: Cost-Benefit Analysis</p>	<p>Location: Oklahoma and Georgia Universal pre-school</p> <p>Population: NR</p>	<p>Cost of program per child: \$4,086</p>	<p>Value of earnings gains per child = \$24,094*</p> <p>Value of total benefits per child = N/A</p>	<p>Net benefit per child = \$20,008</p> <p>Benefit-to-cost ratio (earnings gains only): 5.90</p> <p>Benefit-to-cost ratio (all benefits): N/A</p>
<p>Author (Year): Bartik (2012)</p>	<p>Location: Tulsa</p> <p>Population:</p>	<p>Cost of program per child: \$9,118</p>	<p>Value of earnings gains per child = \$27,897</p> <p>Value of total benefits per child = N/A</p>	<p>Net benefit per child = \$18,779</p>

Study	Study Characteristics	Intervention Costs	Intervention Benefits	Economic Summary Measure (2014 US\$)
Study Design: Model Economic Method: Cost-Benefit Analysis	1,816 Program Schedule: full-day, school year			Benefit-to-cost ratio (earnings gains only): 3.06 Benefit to cost ratio (all benefits): N/A
Author (Year): Bartik (2012) Study Design: Model Economic Method: Cost-Benefit Analysis	Location: Tulsa Population: 841 Program Schedule: half-day, school year	Cost of program per child: \$4,559	Value of earnings gains per child = \$16,683 Value of total benefits per child = N/A	Net benefit per child = \$12,124 Benefit-to-cost ratio (earnings gains only): 3.67 Benefit-to-cost ratio (all benefits): N/A

Federal Head-Start Program

Study	Study Characteristics	Intervention Costs	Intervention Benefits	Economic Summary Measure (2014 US\$)
Author (Year): Washington State IPP (2014) Study Design: Model Economic Method: Cost-Benefit Analysis	Location: Washington State Population: 12,336	Cost (Funding) per child: \$8,830.40	Benefits included earnings from high school education, crime reduction, grade repetition and special education savings, health care cost savings, and reduced child abuse and neglect (with adjustment for deadweight cost of the program) from primary and secondary participants** Value of earnings gains per child = \$21,921.34 Value of total benefits per child = \$23,150.42	Net benefit per child = \$14,320.02 Benefit- to-cost ratio (earnings gains only): 2.48 Benefit to cost ratio (all benefits): 2.62
Author (Year):	National estimates	Cost (Funding) per child: \$7,982.42	Benefits included earnings from high school education, crime reduction, grade repetition	Net benefit per child = \$14,410.03

Study	Study Characteristics	Intervention Costs	Intervention Benefits	Economic Summary Measure (2014 US\$)
<p>Washington State IPP (2015)</p> <p>Study Design: Model</p> <p>Economic Method: Cost-Benefit Analysis</p>	<p>(costs from federal Head-Start programs from the 40 states that had state & district programs and benefits based on national labor market estimates)</p>		<p>and special education savings, health care cost savings, and reduced public assistance expenses (with adjustment for deadweight cost of the program) from primary and secondary participants**</p> <p>Value of earnings gains per child = \$20,021.60</p> <p>Value of total benefits per child = \$22,392.45</p>	<p>Benefit-to-cost ratio (earnings gains only): 2.51</p> <p>Benefit-to-cost ratio (all benefits): 2.81</p>
<p>Author (Year): Duncan et al. (2010)</p> <p>Study Design: Experimental</p> <p>Economic Method: Cost-Benefit Analysis</p>	<p>National estimates</p> <p>Population: NR</p>	<p>Cost of program per child: \$9,173</p>	<p>Value of earnings gains per child = \$14,459</p> <p>Value of total benefits per child = NA</p>	<p>Net benefit per child = \$5,286</p> <p>Benefit-to-cost ratio (earnings gains only): 1.58***</p> <p>Benefit-to-cost ratio (all benefits): NA</p>

Model Programs

Study	Study Characteristics	Intervention Costs	Intervention Benefits	Economic Summary Measure (2014 US\$)
<p>Author (Year): Barnett (2007)</p> <p>Study Design: Random assignment</p> <p>Economic Method: Cost-Benefit Analysis</p>	<p>Year began: 1972</p> <p>Location: Chapel Hill, NC (Abecedarian)</p> <p>Sample Size: 104 (6 weeks to age 5)</p>	<p>Cost per child: \$83,530 (for 5 years)</p>	<p>Benefits from child care, improved maternal earnings and resulting earnings gains for future generations, K-12 cost savings, health cost savings (from smoking related mortality) and earnings gains net of post-secondary education costs</p> <p>Value of all earnings gains per child (includes maternal compensation, compensation for</p>	<p>Net benefit per child: \$124,753</p> <p>Benefit-to-cost ratio (from all earnings gains): 1.76</p> <p>Benefit-to-cost ratio (all benefits): 2.49</p>

Study	Study Characteristics	Intervention Costs	Intervention Benefits	Economic Summary Measure (2014 US\$)
	<p>Program schedule: Full-day (up to 10 hours per day), year-round (250 days per year)</p> <p>Follow-up Time: Through Age 21 years</p>		<p>future generation through maternal employment and income, and compensation for children as adults): \$147,359.28</p> <p>Value of total benefits per child: \$208,283</p>	
<p>Author (Year): Heckman (2010)</p> <p>Study Design: Random assignment</p> <p>Economic Method: Cost-Benefit Analysis</p>	<p>Year began: 1962</p> <p>Location: Ypsilanti, MI (High/Scope Perry Preschool)</p> <p>Sample Size: 123 (Ages 3-4): 58 in Treatment and 65 in Control</p> <p>Program schedule: Half-day (2.5 hour on weekdays), school year (about 180 days), and weekly home visits.</p> <p>Follow-up Time: Ages 15, 19, 27 and 40 years</p>	<p>Includes teacher salaries and administrative costs and capital cost (classrooms and facilities)</p> <p>Cost per child: \$20,854.14</p>	<p>Benefits from earnings, reduced crime, reduced receipt of cash transfers (because of lower welfare costs) and educational savings (reduced retention in grades and reduced special education expenses)</p> <p>Value of earnings gains per child = \$91,606.03</p> <p>Value of total benefits per child = \$179,446.12</p>	<p>Net benefit per child = \$158,592</p> <p>Benefit-to-cost ratio (earnings gains only): 4.39</p> <p>Benefit-to-cost ratio (all benefits): 8.60</p>
<p>Author (Year): Reynolds (2011)</p> <p>Study Design: Quasi-experimental (comparison group)</p>	<p>Year began: 1983</p> <p>Location: Chicago, IL (Chicago Child-Parent Centers)</p>	<p>Cost per participant: \$9,718.71 (instructional staff for classroom, parent program, and administration accounted for 65.7% of total program expenditures)</p>	<p>Benefits from earnings, reduced crime, reduced child abuse and neglect, educational savings, child care, and health benefits (reduced depression and substance misuse)</p>	<p>Net benefit per child: \$95,574.93</p> <p>Benefit-to-cost ratio (earnings gains only): 3.39</p> <p>Benefit-to-cost ratio (all benefits): 10.83</p>

Study	Study Characteristics	Intervention Costs	Intervention Benefits	Economic Summary Measure (2014 US\$)
<p>matched the program group on age, eligibility and participation in intervention, and neighborhood and family poverty)</p> <p>Economic Method: Cost-Benefit Analysis</p>	<p>Sample Size: 1539 (Ages 3-4); Preschool intervention group: 989; comparison group: 550)</p> <p>Program Schedule: half-day, school year</p> <p>Follow-up Time: 26 years</p>		<p>Value of earnings gains per child = \$32,933.09</p> <p>Value of total benefits per child = \$105,293.64</p>	

NA: Not Applicable

*3.4 discount rate and a 1.9 real productivity growth rate

**Benefits from secondary participants come from preventing negative outcomes associated with the children of teen mothers

***Use test score impact of 0.12 standard deviation that is lower than the average test score impact of Head Start (0.19 standard deviation)