Early Childhood Education for Low Income 3- and 4-Year Olds

Program description:

Early childhood education programs for low-income 3- and 4-year-olds analyzed include model programs (Perry Preschool, Abecedarian, and Chicago Parent Child Centers) and larger scale programs (such as Head Start and state-funded programs).

Typical age of primary program participant: 4

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
						First time ES is estimated			Second time ES is estimated		
			ES	SE	p-value	ES	SE	Age	ES	SE	Age
Crime	P	11	-0.23	0.13	0.06	-0.23	0.13	16	-0.22	0.06	21
High school graduation	P	11	0.16	0.03	0.00	0.16	0.03	20	0.16	0.03	20
Test scores	P	26	0.27	0.03	0.00	0.27	0.03	5	0.13	0.02	17
Child abuse and neglect	P	1	-0.47	0.13	0.00	-0.47	0.13	15	-0.47	0.13	17
K-12 grade repetition	P	23	-0.36	0.11	0.00	-0.36	0.11	11	-0.36	0.11	11
K-12 special education	P	18	-0.26	0.08	0.00	-0.26	0.08	13	-0.26	0.08	13
Out-of-home placement	P	1	-0.40	0.14	0.00	-0.40	0.14	16	-0.40	0.14	17
Employment	P	2	0.26	0.15	0.18	0.26	0.15	30	0.26	0.15	40
Teen pregnancy (under age 18)	P	5	-0.19	0.13	0.13	-0.19	0.13	21	-0.19	0.13	21

Benefit-Cost Summary

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2011). The economic discount rates and other relevant parameters are described in Technical Appendix 2.

Program Benefits					Costs	Summary Statistics			
Participants	Taxpayers	Other	Other Indirect	Total Benefits		Benefit to Cost Ratio	Return on Investment	Benefits Minus Costs	Probability of a positive net present value
$8,982	$6,802	$3,272	$3,401	$22,457	-$7,523	$2.99	6%	$14,934	100%

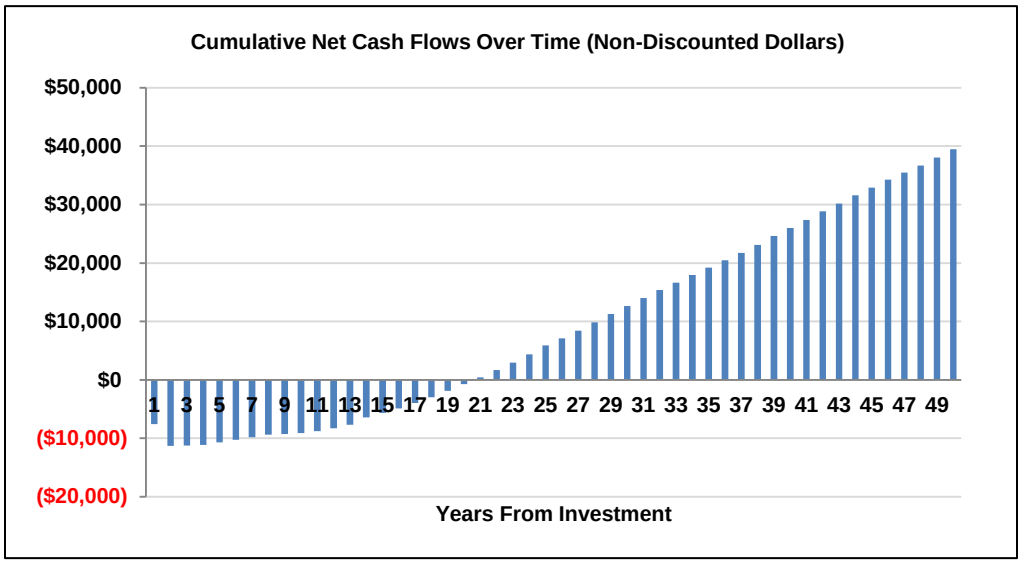
Detailed Monetary Benefit Estimates

Source of Benefits	Benefits to: Participants	Taxpayers	Other	Other Indirect	Total Benefits
From Primary Participant					
Crime	$0	$1,371	$4,075	$686	$6,132
Earnings via high school graduation	$1,564	$576	$0	$288	$2,428
Earnings via test scores	$6,677	$2,457	$0	$1,229	$10,363
Child abuse and neglect	$878	$132	$0	$66	$1,077
Out-of-home placement	$0	$251	$0	$126	$376
K-12 grade repetition	$0	$217	$0	$108	$325
K-12 special education	$0	$723	$0	$363	$1,087
Property loss from illicit drug disorder	$1	$0	$1	$0	$2
Health care costs via education	-$138	$1,076	-$804	$535	$668

Detailed Cost Estimates

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The uncertainty range is used in Monte Carlo risk analysis, described in Technical Appendix 2.	Program Costs			Comparison Costs			Summary Statistics	
	Annual Cost	Program Duration	Year Dollars	Annual Cost	Program Duration	Year Dollars	Present Value of Net Program Costs (in 2011 dollars)	Uncertainty (+ or – %)
	$6,662	2	2010	$1,679	2	2008	$7,510	25%

Source: The program cost is the average per-child payment for Washington State's Early Childhood Education and Assistance Program (ECEAP). The comparison group cost is the average per-child payment for Washington State's Working Connections Child Care subsidy. The 25 percent uncertainty around the cost estimate reflects the higher per-child costs for the model programs included in this analysis.



Multiplicative Adjustments Applied to the Meta-Analysis

Type of Adjustment	Multiplier
1- Less well-implemented comparison group or observational study, with some covariates.	1.00
2- Well-implemented comparison group design, often with many statistical controls.	1.00
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	1.00
4- Random assignment, with some implementation issues.	1.00
5- Well-done random assignment study.	1.00
Program developer = researcher	1.00
Unusual (not “real-world”) setting	1.00
Weak measurement used	1.00

The adjustments for these studies are based on our empirical knowledge of the research in a topic area. We performed a multivariate regression analysis of 336 effect sizes from evaluations of early childhood education programs. The analysis examined the relative magnitude of effect sizes for studies rated a 1, 2, 3, or 4 for research design quality, in comparison with a 5 (the Technical Appendix describes these ratings). We weighted the model using the random effects inverse variance weights for each effect size. The results indicated that research designs 2, 3, and 4 should have a multiplier greater than 1 and research design 1 should have a multiplier of slightly less than 1. Using a conservative approach, we set all the multipliers to 1.

The analysis also found that effect sizes were statistically significantly lower when the program developer was involved in the research evaluation, when the program was implemented on a pilot basis, or when a weak outcome measure (such as self-reported behavior) was used. We also set these multipliers equal to 1.

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