

# Cost-Effective Early Childhood Development Programs from Preschool to Third Grade

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# Key Points

1. Many states continue to underinvest in preschool.
2. High-quality preschool shows high cost-effectiveness.
3. Evidence is strong that state-funded prekindergarten programs improve school readiness.
4. Full-day kindergarten has small effects that do not endure.

# Key Points

5. PK-3 Interventions strengthen learning gains and have long-term effects.
6. School-age programs can make a difference, including small classes, and social skills training.
7. Cost-effectiveness will occur only for high quality programs following key principles of effectiveness.
8. Strengthen programs for 4-year-olds.

1. Many states continue to underinvest in preschool.

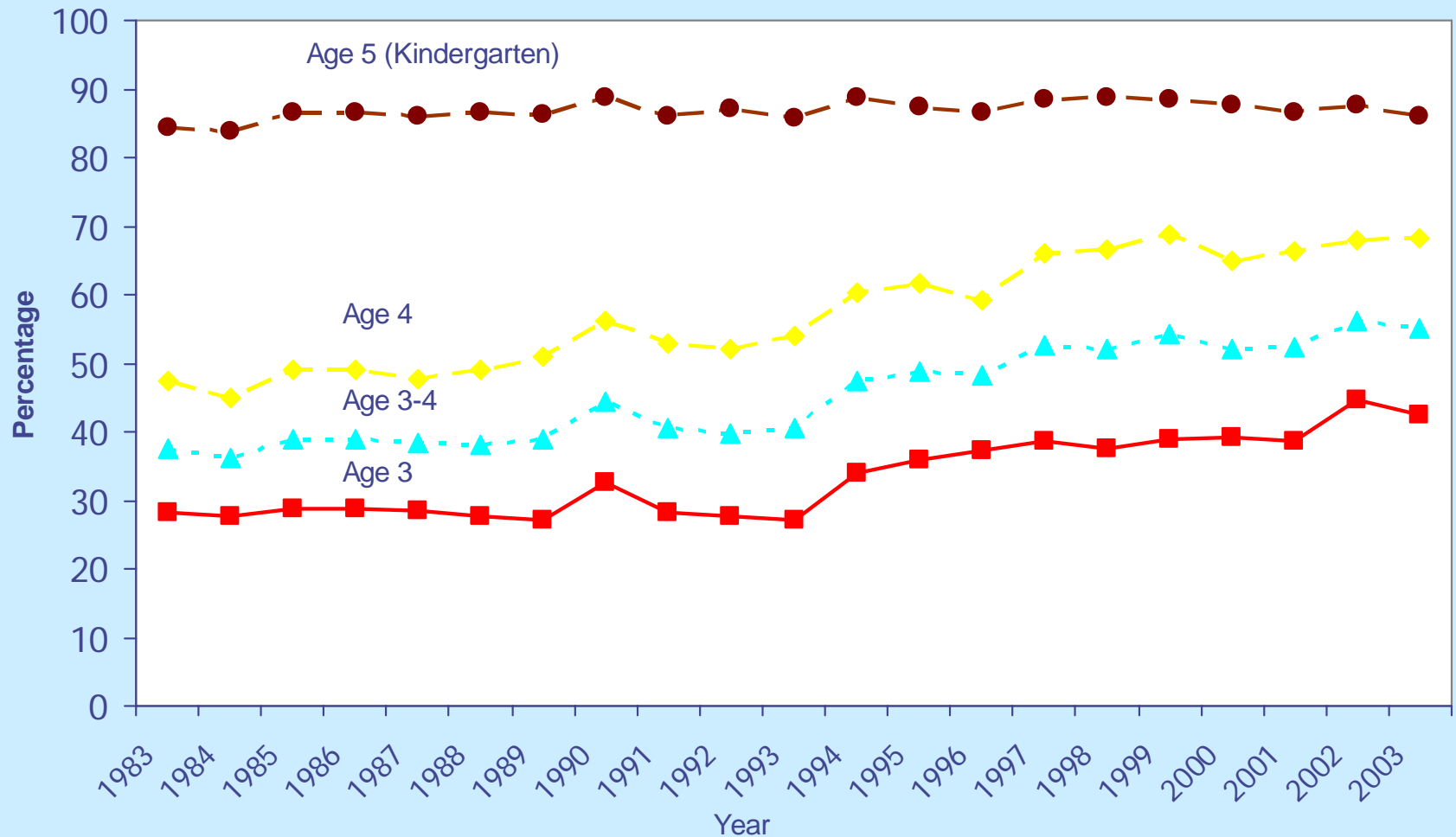
# Leading States in State PreK Access, 2006

State	% in State Pre-K, HS, or EI	Rank (1-38)
Oklahoma	70	1
Georgia	52	2
Vermont	47	3
Florida	47	4
Texas	44	5
West Virginia	40	6
Wisconsin	32	7

# Lagging States in State PreK Access, 2006

<b>State</b>	<b>% in State Pre-K</b>	<b>Rank (1-38)</b>
Alabama	1.7	38
Minnesota	1.8	37
Nevada	2.1	36
Nebraska	3.6	35
Missouri	4.0	34
Ohio	4.4	33
Iowa	4.5	32

# U.S. Children in Early Education



Source: National Center for Educational Statistics (2003)

2. High quality preschool programs show high cost-effectiveness



# Common Paths from Early Childhood to Adult Well-Being

**Early Childhood**  
Ages 3-9

**Ages 5-12**

**Adolescence to Adulthood**

**Exogenous Conditions**  
Gender  
Socio-Environmental Risk  
Neighborhood Attributes

**Program Participation**  
Timing  
Duration  
Intensity

MA= Motivational Advantage  
CA = Cognitive Advantage  
SA = Social Adjustment  
FS = Family Support  
SS = School Support

**Motivation**  
Self-efficacy  
Perceived competence  
Persistence in learning

**Developed Abilities**  
Cognitive development  
Literacy skills  
Pre-reading/numeracy skills

**Social Adjustment**  
Classroom adjustment  
Peer relations  
Self-regulating skills

**Family Support**  
Parent-child interactions  
Home support for learning  
Participation in school  
Parenting skills

**School Support**  
Quality of school environment  
Classroom environment  
School-level performance

**Competence Behaviors**  
School Achievement and Performance  
School Remediation  
Delinquency and Crime  
Child Maltreatment  
Participation in Social Services  
Health & Mental Health  
Educational Attainment  
Economic Well-Being  
Family Circumstances

MA

CA

SA

FS

SS

MA

CA

SA

FS

SS

# Age at Follow-up for Early Childhood Interventions

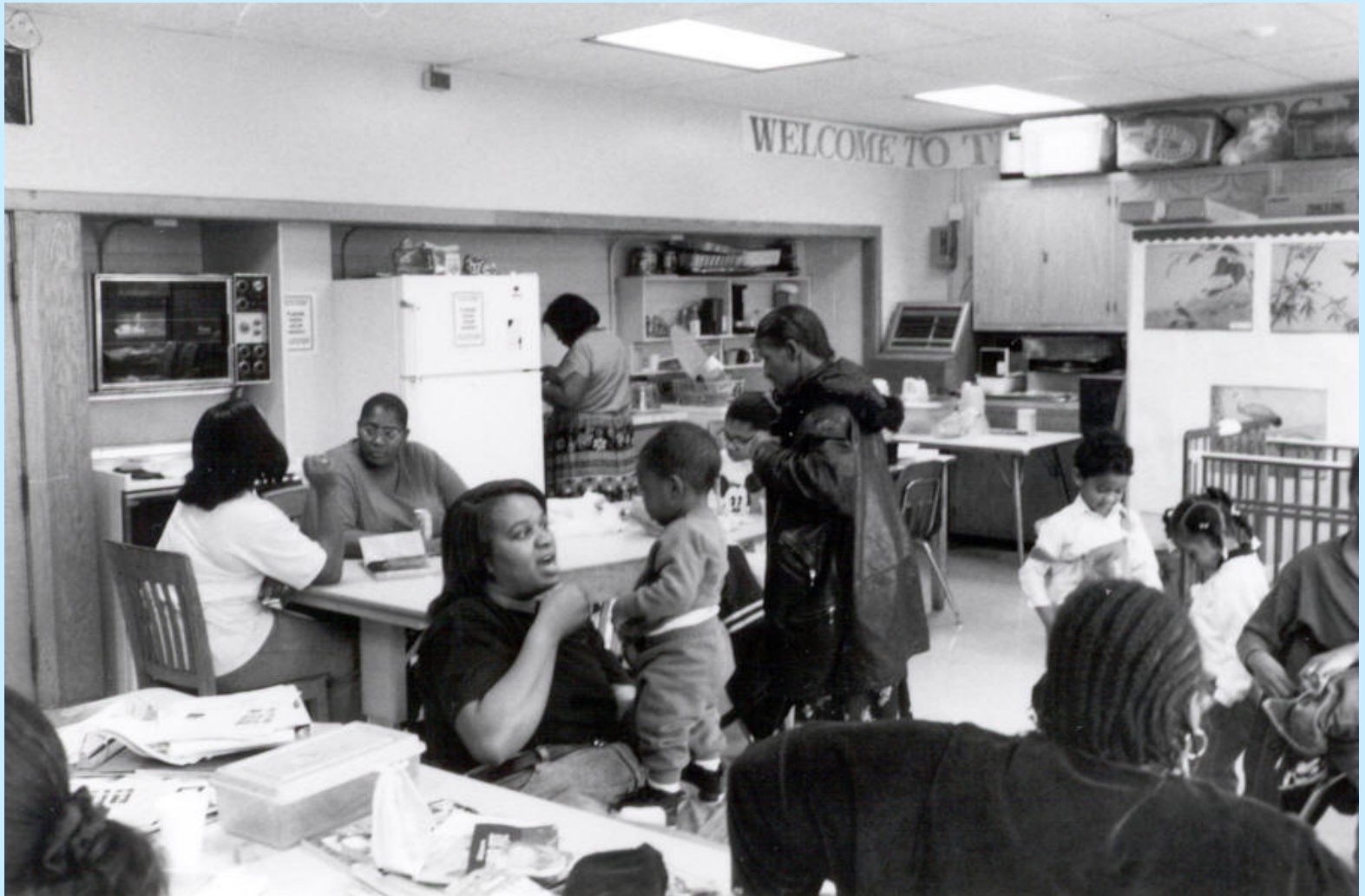
Program	Type	Age at Last Follow-Up
High/Scope Perry Preschool Program	Model	40
Carolina Abecedarian Project	Model	21
Houston Parent-Child Development Center	Model	18
Yale Child Welfare Research Program	Model	15
Chicago Child-Parent Centers	Large Scale	24
Milwaukee Project	Model	14
Syracuse Family Development Program	Model	15
Consortium for Longitudinal Studies	Model	22
Infant and Health Development Program	Model	18
Elmira Prenatal/Early Infancy Project	Model	15
PSID Head Start Longitudinal Study	Large Scale	25

# CPC Staffing

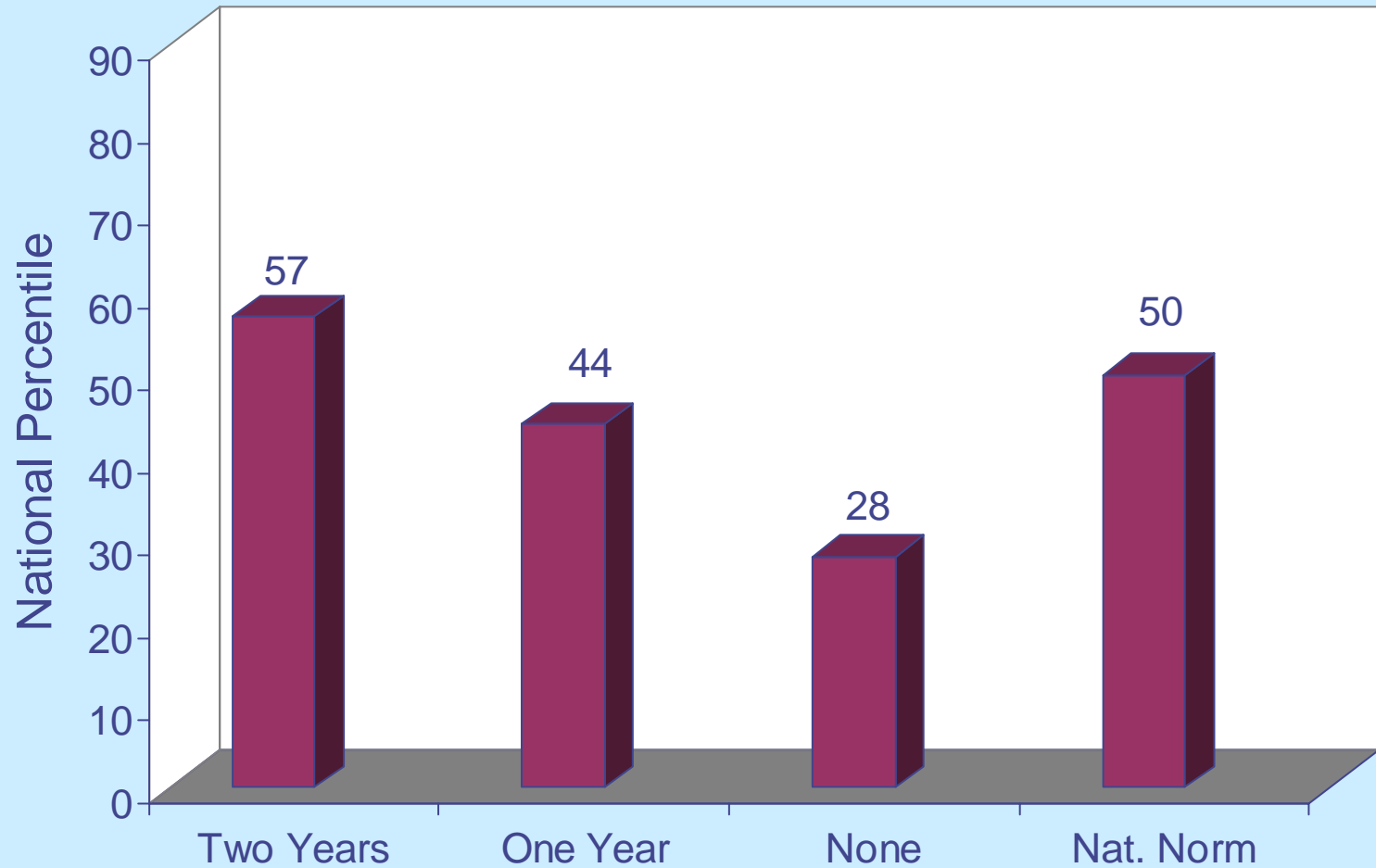
- ◆ Head Teacher
- ◆ Parent Resource Teacher
- ◆ School-Community Representative
- ◆ Teachers and aides
- ◆ School nurse, psychologist, social worker
- ◆ Preschool class size was 17 to 2
- ◆ Kindergarten, school age was 25 to 2
- ◆ School-age program had coordinator called curriculum-parent resource teacher



# Parent Resource Room



# CPC Preschool and Readiness



# Economic Returns for 3 Programs

	<b>Benefits</b>	<b>Costs</b>	<b>Ratio</b>
Perry	138,486	15,844	8.74
Child-Parent	67,595	7,384	10.15
Abecedarian	135,546	67,225	2.02

# Education and Crime-Age 24

	Prog	Comp	Diff
HS completion	79.4%	70.7%	8.7%*
Incarceration or jail	20.4%	26.1%	-5.7%*



# Health Status/Behavior

	Prog	Comp	Diff
Depressive symptoms	12.8%	17.4%	-4.6%*
Any health ins.	71.9%	61.0%	10.9%*

# Common Elements of Programs Showing High Returns

1. Opportunity for More than 1 Year of Participation.
2. Well-trained and Compensated Teachers.
3. Class Sizes under 18 and Child to Staff Ratios less than 9 to 1.
4. Instruction that is Diverse & Literacy Rich.
5. Comprehensive Family Services.
6. Average Yearly Cost per Child no Less than \$5,000 (2004 dollars).

# Economic Returns from 3 Policy Simulations

	<b>Focus</b>	<b>Benefit- Cost Ratio</b>
RAND, 2005	Universal	2.62
Aos, 2004	58 studies Targeted	2.36
Lynch, 2007	Targeted Universal	12.10 8.20

3. Evidence is strong that state-funded prekindergarten improves school readiness.

# Evidence for State PreK Programs

	<b>Effect size</b>	<b>In Months</b>
New Mexico	.37	3-4
Arkansas	.30	3
New Jersey	.32	3-4
Oklahoma	.26	3
Tulsa, OK	.58	6
Synthesis of 7 states/cities	.36	3-4

4. Full-Day Kindergarten has small effects that do not endure.

# Full-Day Kindergarten Effects

Synthesis of 23 studies

	<b>Effect size</b>	<b>Months</b>
Kindergarten	.18	2
<i>Grades 1-4</i>	<i>.01</i>	<i>0</i>
<i>Grades 2-3</i>	<i>.05</i>	<i>0</i>
<i>Grade 4</i>	<i>.00</i>	<i>0</i>

# Example from CPC Program

--Reading achievement

	<b>End of K</b>	<b>Grade 1</b>
PK + FDK	65	74
<i>PK + HDK</i>	<i>62</i>	<i>75</i>
<i>No PK + FDK</i>	<i>60</i>	<i>70</i>



5. PK-3 Interventions strengthen learning gains and have long-term effects.

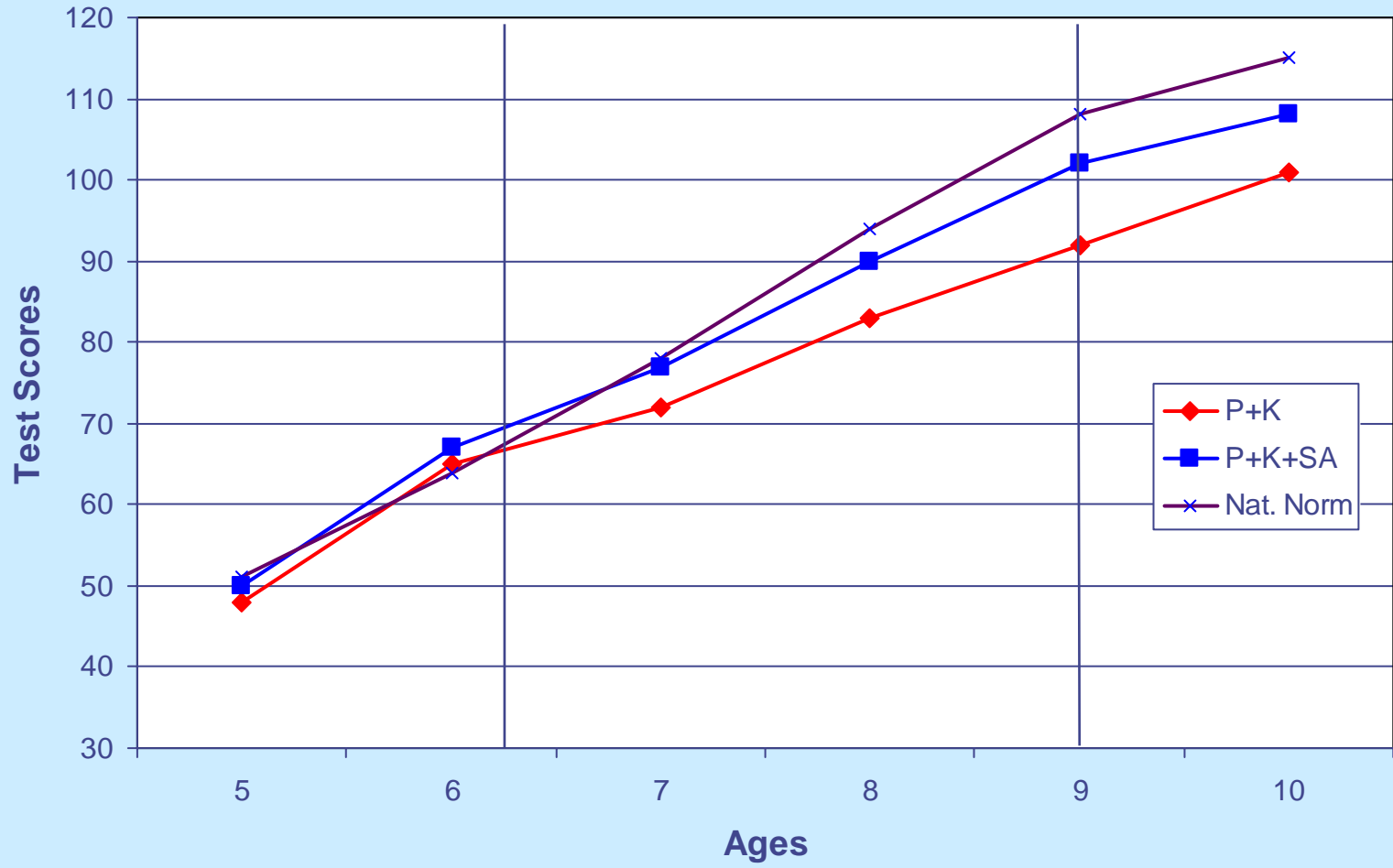
# Rationale for PK-3

- ◆ Help sustain learning gains from preschool education
- ◆ Promote better early transitions
- ◆ Greater “dosage” will help children at risk

# Johnson Child-Parent Center



### Reading Achievement over Time by Extended Program Groups



# CPC PK-3 Cost-Effectiveness

	<b>Benefits</b>	<b>Costs</b>	<b>Ratio</b>
Original	27,154	4,447	6.11
Add intangible crime savings	40,245	4,447	9.05

6. Early school-age programs can make a difference.

# Class Size Reductions in Early Schooling

	<b>Benefits</b>	<b>Costs</b>	<b>Ratio</b>
Tenn. STAR	23,913	8,454	2.83
CPC school-age	6,928	3,268	2.12

# STAR High School Graduation

- ◆ No link between small classes and graduation in total sample
- ◆ Link was found among low-income students with 3 and 4 years in small classes



# Social Skills Training, Grades 1-6

	<b>Benefits</b>	<b>Costs</b>	<b>Ratio</b>
Skills, Opport. and Recognition	14,810	4,712	3.14

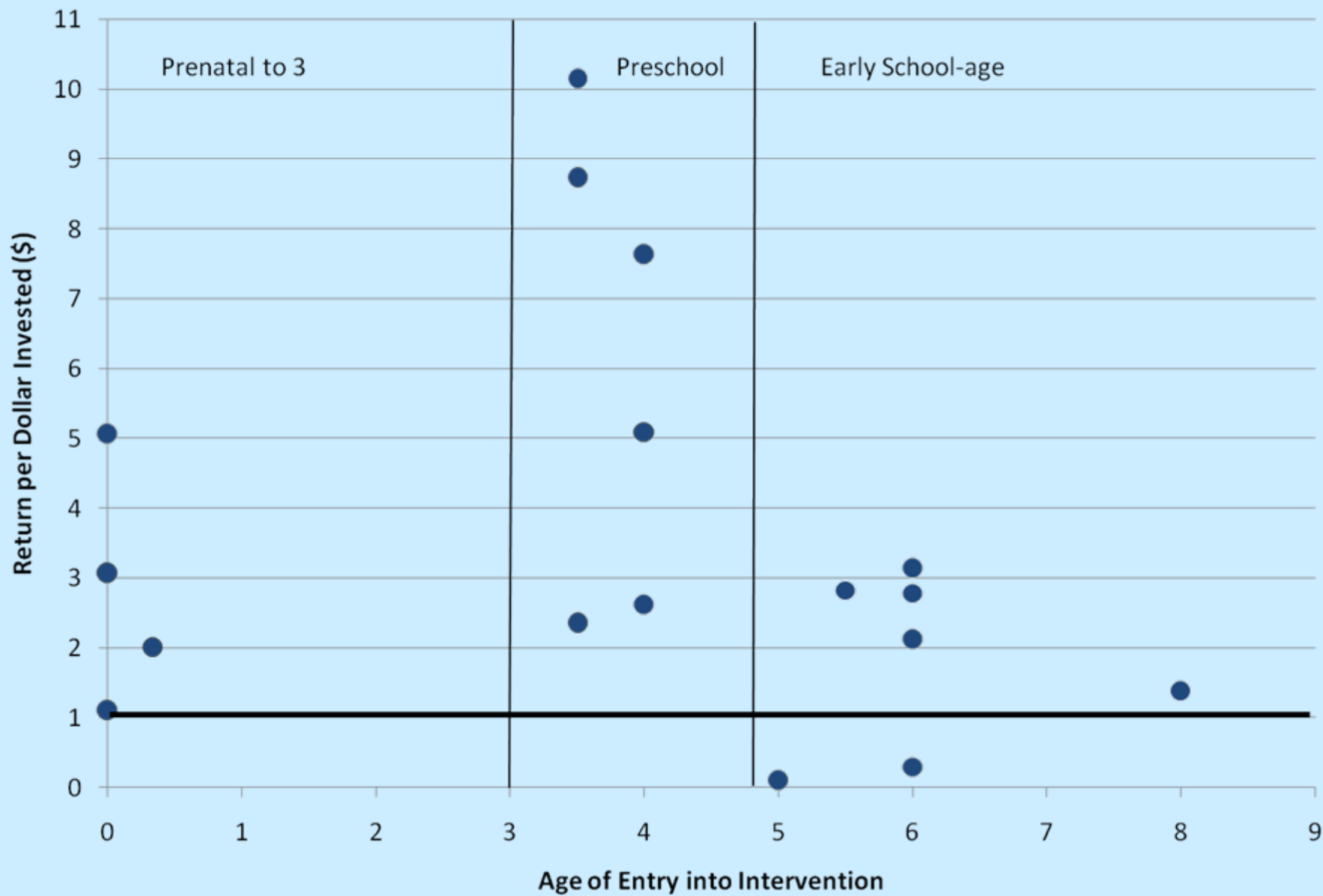
# Reading Recovery

Relatively large short-term effects on reading achievement.

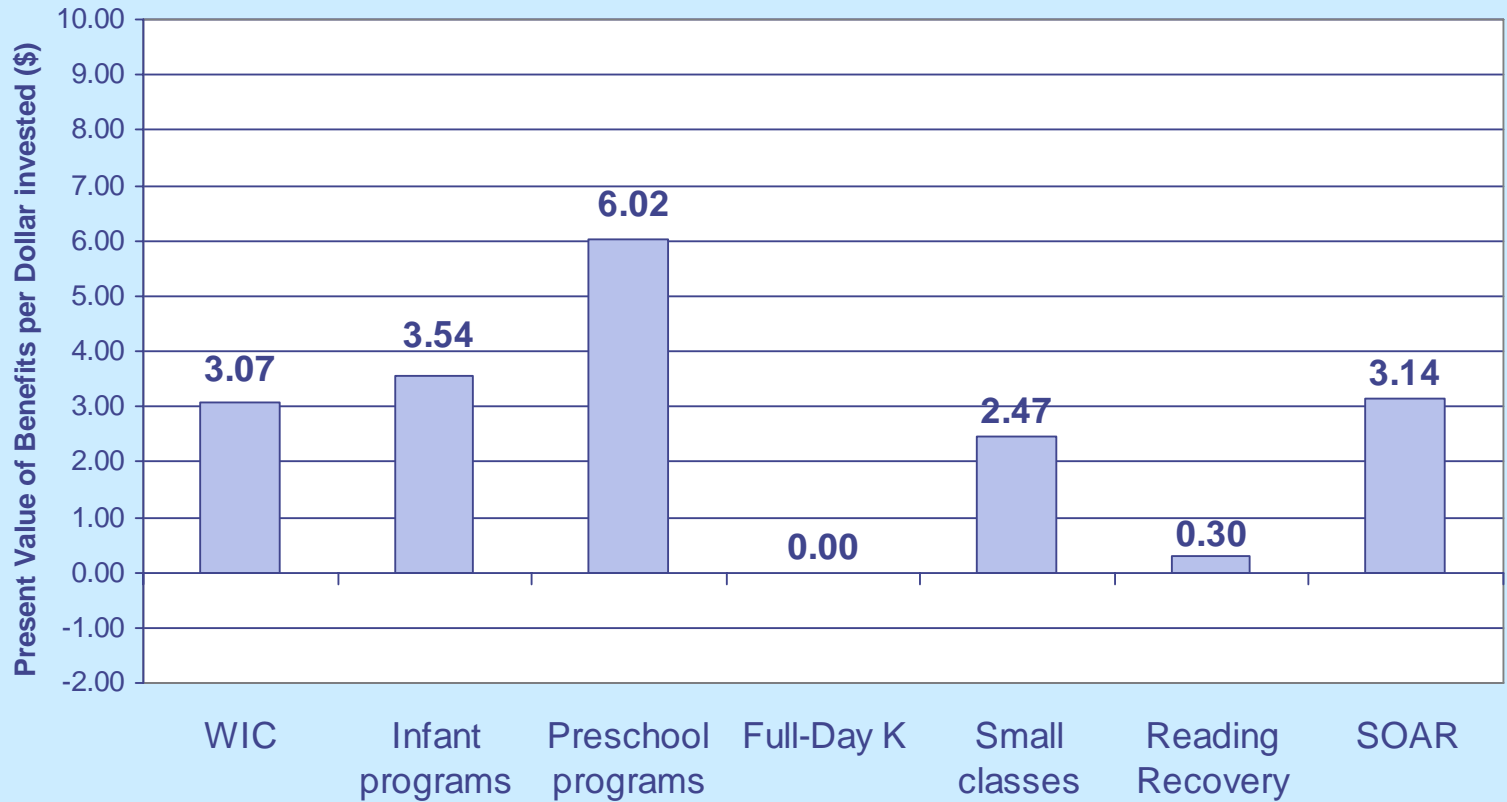
Small effects by third or fourth grade

Impacts may return about a third of program costs

# Return per Dollar Invested by Age of Entry into Intervention



# Benefit-Cost Ratios for Child Programs



7. Cost-effectiveness will occur only for high-quality programs.

# Key Elements of Effectiveness

- ◆ Timing-Earlier is generally better
- ◆ Duration-More is better
- ◆ Comprehensive family services
- ◆ Intensity of instruction, services
- ◆ Small class sizes

# Key Elements of Effectiveness

- ◆ Well-trained, compensated staff
- ◆ Transition-to-school services
- ◆ Compensatory focus
- ◆ Strong accountability system
- ◆ Primary focus on children at risk

# Recommendations

1. Strengthen investments in programs for 4-year-olds based on key principles of effectiveness.
2. Increase state investment in evidence-based school transition programs and services.
3. Use results of cost-benefit analysis to better prioritize funding.



# Recommendations

4. Develop funding mechanisms to support timely implementation.
5. Increase R & D investment for program assessment.

# Further Information

## Early Childhood Research Collaborative

[www.earlychildhoodrc.org](http://www.earlychildhoodrc.org)

## Chicago Longitudinal Study

[www.cehd.umn.edu/icd/cls/](http://www.cehd.umn.edu/icd/cls/)

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