

# Prevention, Return on Investment, and Early Childhood Programs

Arthur J. Reynolds, Session Chair  
University of Minnesota

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# Prevention

Prevention Science focuses on the etiology, development, implementation, effects, dissemination, and translation of programs, services

Ecological Framework

Life Course Perspective

# Cost Effectiveness (ROI)

ROI focuses on the efficiency of programs to better prioritize alternatives across domains

Human Capital Framework

Promoting Skills and Competencies  
for Adult Well-Being

# Stage of Program Development

Efficacy trial

Effectiveness trial

Sustained program & services

# Early Childhood Programs

Nutrition

Home Visitation

Birth to 3 interventions (Early Head Start)

Child care and early education

State-funded Prekindergarten

Head Start and related Federal Programs

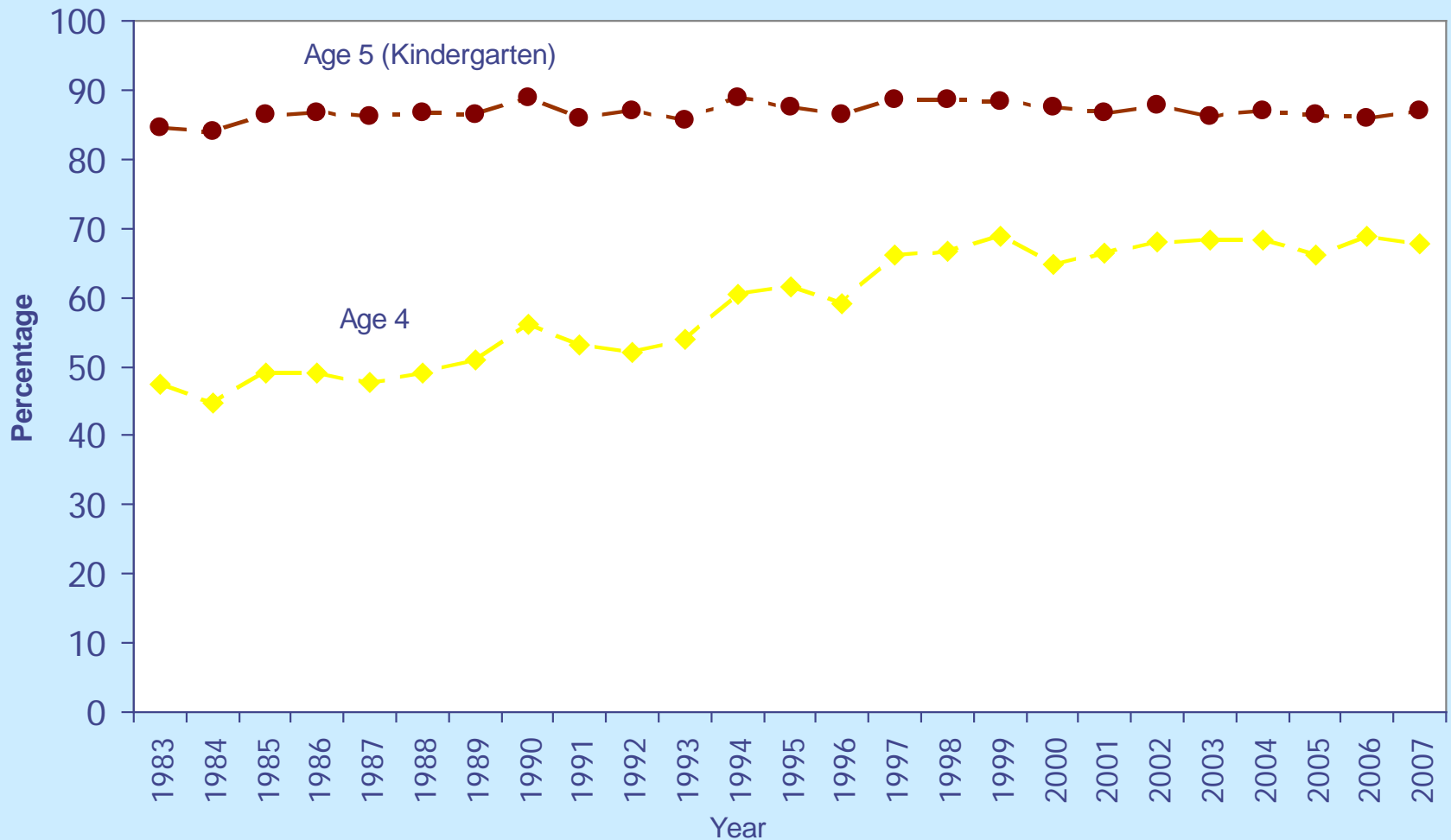
Kindergarten

Small classes in the early grades

Social skills training

PK-3 programs and practices

# U.S. Children in Early Education



Source: National Center for Educational Statistics (2003, 2009)

# Three Critical Topics

Generalizability of Evidence

Steve Barnett, NIEER/Rutgers

Key Principles of Effectiveness

Larry Schweinhart, High/Scope

Cost Effectiveness (ROI)

Arthur Reynolds, U of Minn

# Cost-effective ECD Programs in Children's First Decade

Arthur Reynolds, Judy Temple, and  
Barry White

University of Minnesota



# Review

17 CBAs from 16 programs

1 study per program

Differed in follow-up and breadth

Excluded ECDs have lower effects

# Early Childhood Programs

WIC

Nurse-Family Partnership

Abecedarian Project

High/Scope Perry Preschool

Child-Parent Centers (CPC)

Syntheses/Simulations of PreK

Full-day K

Small Classes

SOAR (social skills training)

CPC PK-3

# Common Benefit Measures

Low birth weight

Remedial education

Achievement test scores

Child maltreatment

Educational attainment

Juvenile Delinquency

Adult crime

Substance use/tobacco

Public aid

# CBA Estimates

2007 dollars

Total (societal) benefits per participant

Projected and actual benefits

Annual discount rates 3-4%

Two metrics:

- Benefit/Cost Ratio

- Benefits-Costs (Net Present Value)

Extensive robustness testing in some studies

# Birth to Age 3 Programs (\$2007)

	<b>Benefits</b>	<b>Costs</b>	<b>Ratio</b>
WIC (1)	1,206	393	3.07
NFP (15)	65,737	16,727	3.93

# Birth-5 Maltreatment Findings

Program	Prog	Comp	Age
HF-New York	5.1%	4.8%	Prenatal
HF-Alaska	16%	17%	Prenatal
Hawaii HS	1.1%	1.5%	Birth
NFP	24.0%	32.0%*	Prenatal
Teen PAT	0.0%	2.4%*	Birth
Prenatal & PHS	9.2%	6.6%	Prenatal
CPC	7.8%	14.7%*	3 years

## 3 Preschool Programs (\$2007)

	<b>Benefits</b>	<b>Costs</b>	<b>Ratio</b>
Perry (27)	159,610	18,260	8.74
CPC (21)	86,401	8,512	10.15
ABC (21)	182,422	73,159	2.49

# Returns from Policy Simulations

	<b>Focus</b>	<b>Benefit- Cost Ratio</b>
RAND, 2005	Universal	2.62-4.00
Aos, 2004	58 studies Targeted	2.36
Lynch, 2007 (by 2050)	Targeted Univeral	3.18-12.10 2.00-8.20



# 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).

# Synthesis of Evidence from 3 Cohort Studies

	Length	Ratios	Scope
Abecedarian	5 years	12 to 2	Health services
CPC	1-2 years	17 to 2	Parent program
Perry	1-2 years	23 to 4	Home visits

# Validity Analysis: ECD Studies

Internal validity

External validity

Policy relevance

Generative mechanisms

## Amount of Evidence: Preschool

	IV	EV	PR	GM
CPC	High	Med	High	High
PPP	High	Low	Low	Med
ABC	High	Low	Low	Low

# Amount of Evidence: Home Visiting

	IV	EV	PR	GM
NFP	High	Low	Med	Low
HFA	High	High	Low	Low

# Class Size Reductions in Early Schooling

	<b>Benefits</b>	<b>Costs</b>	<b>Ratio</b>
Tenn. STAR	27,561	9,744	2.83
CPC school-age	8,089	3,792	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 Recogn.	16,256	5,172	3.14



# Reading Recovery

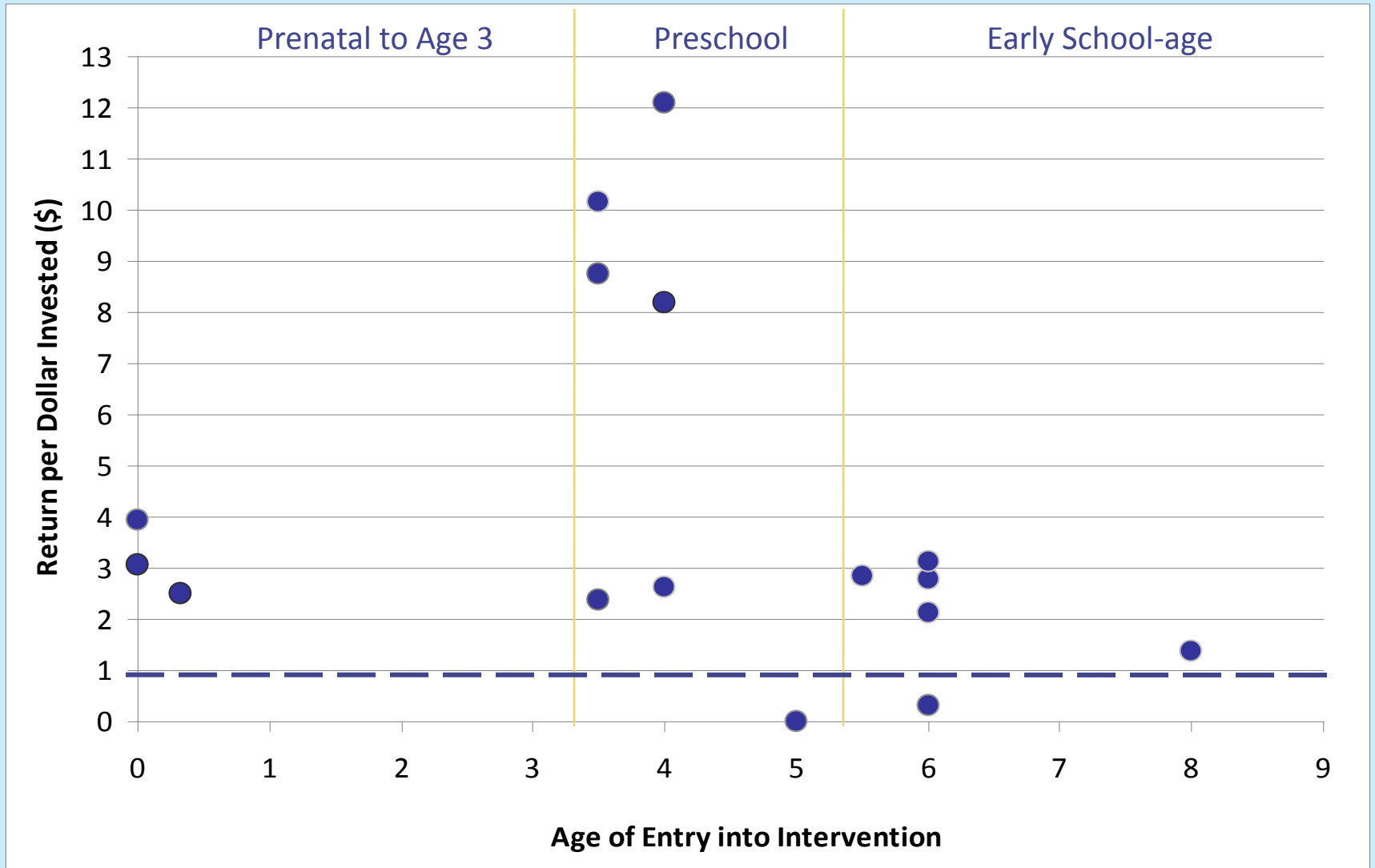
Relatively large short-term effects become very small by third grade

Impacts may return about a third of program costs

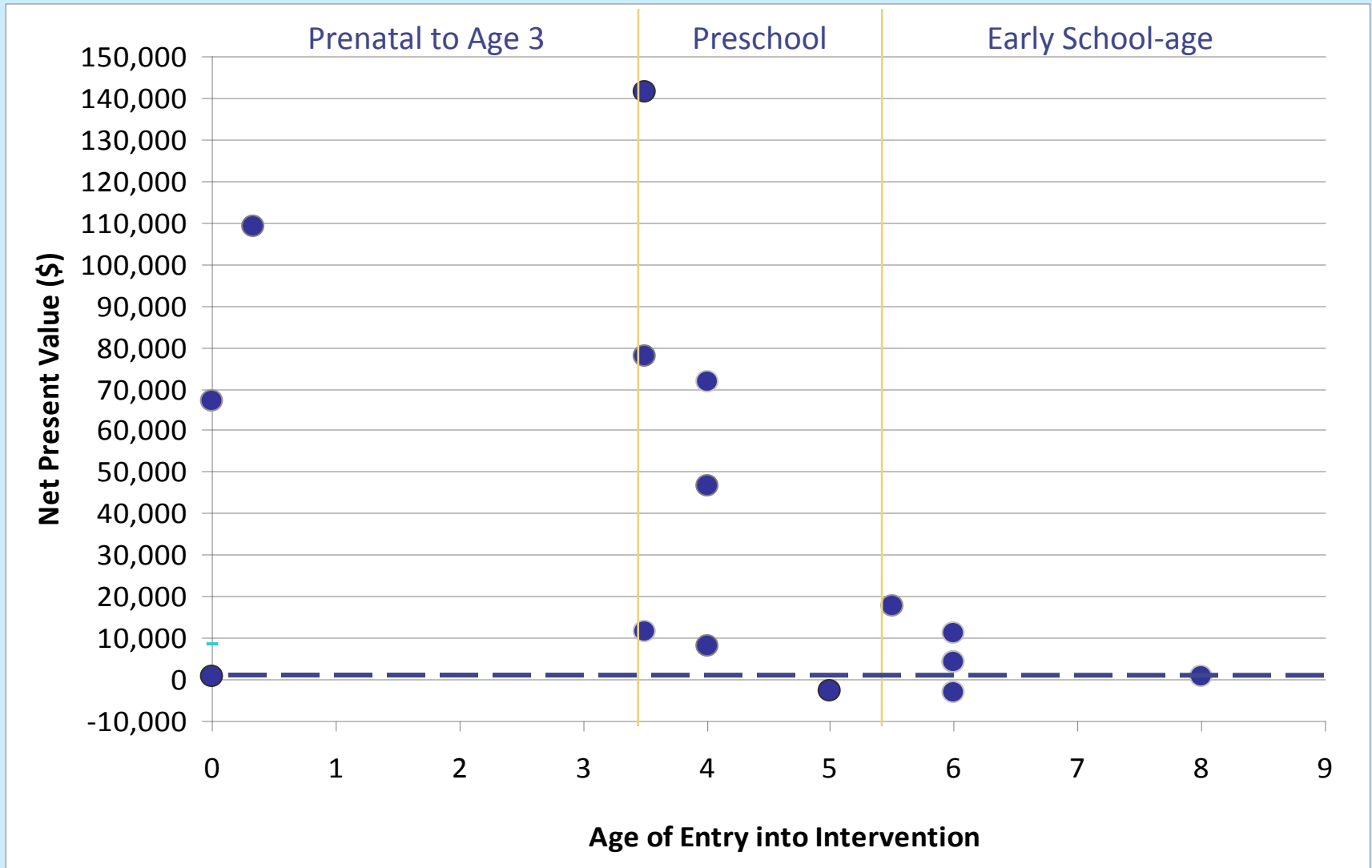
# Preschool to Grade 3: Improve Transitions to School

	<b>Benefits</b>	<b>Costs</b>	<b>Ratio</b>
CPC PK-3	47,161	5,175	9.11

*Return per Dollar Invested by Age of Entry into Intervention*

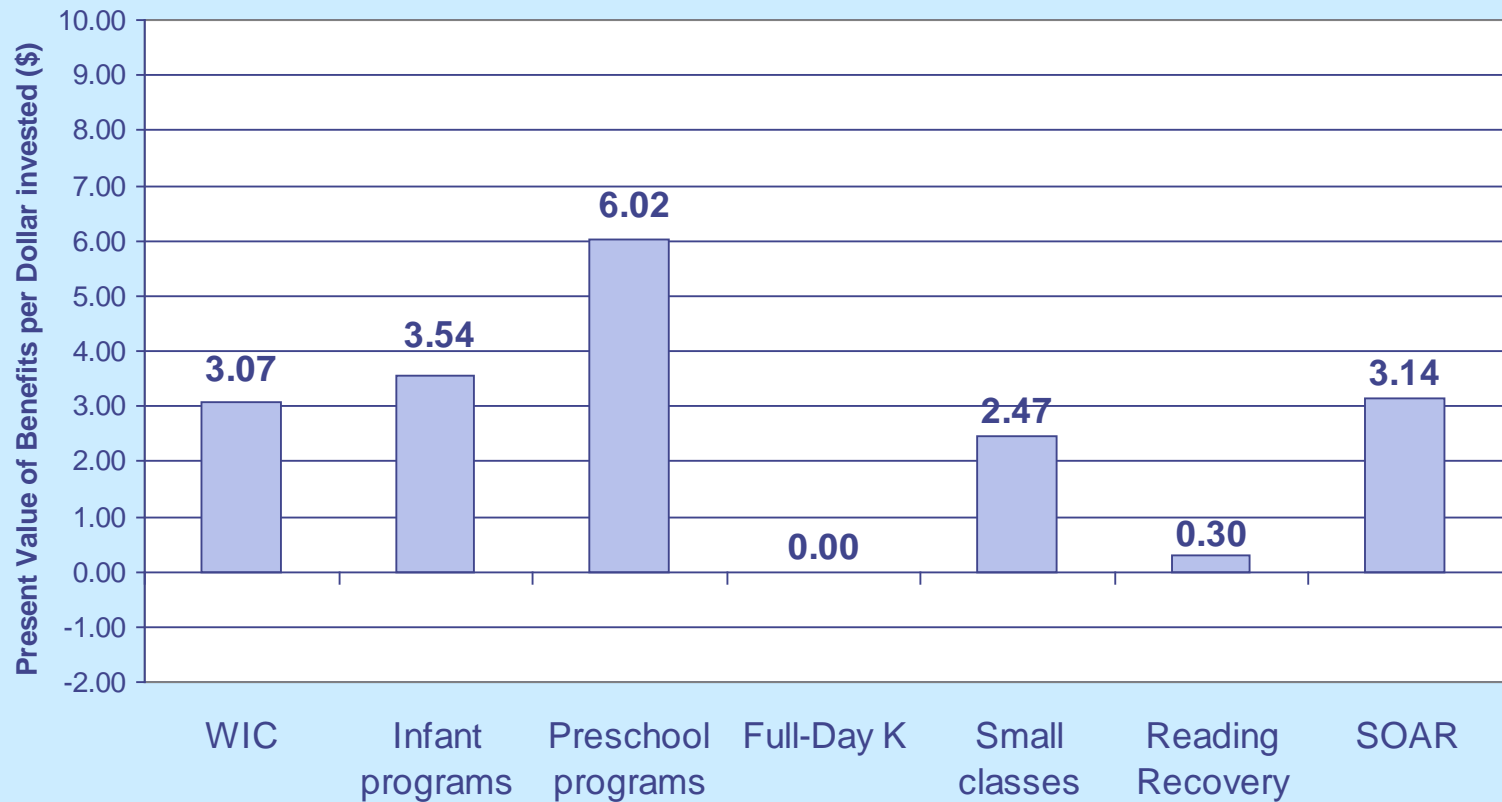


## Net Present Value by Age of Entry into Intervention



Note: Net present value estimates are in 2007 dollars

# Benefit-Cost Ratios for Child Programs



# Limitations of ROI/CBA Field

1. Few formal studies have been conducted.
2. Only 4 prospective cohort studies into adulthood.
3. Over-reliance on projected benefits.
4. Limited generalizability to sustained public-service programs.
5. Scant attention to combined programs across ages and synergistic effects.
6. ROI only one criteria of effectiveness.

*Under-Prediction of Adult Crime from Juvenile Arrest: CLS*

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	<b>Projected from Juvenile Court</b>	<b>No. of Felony Arrest by age 24</b>	<b>Difference</b>
Program Effect	-0.08	-0.11	.03
<b>Total Savings</b>	<b>12,683</b>	<b>17,440</b>	<b>4,757</b>

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# Future Directions

1. Greater focus on prenatal, birth to 3, and early school-age programs
2. Current preschool programs serving more economically diverse samples
3. Follow-up length and breadth of outcomes should be consistent with program theory
4. Establish “strong” predictors of benefits.
5. Attention synergistic effects of cross-age programs
6. Include subgroup benefits
7. Mechanisms and pathways of change

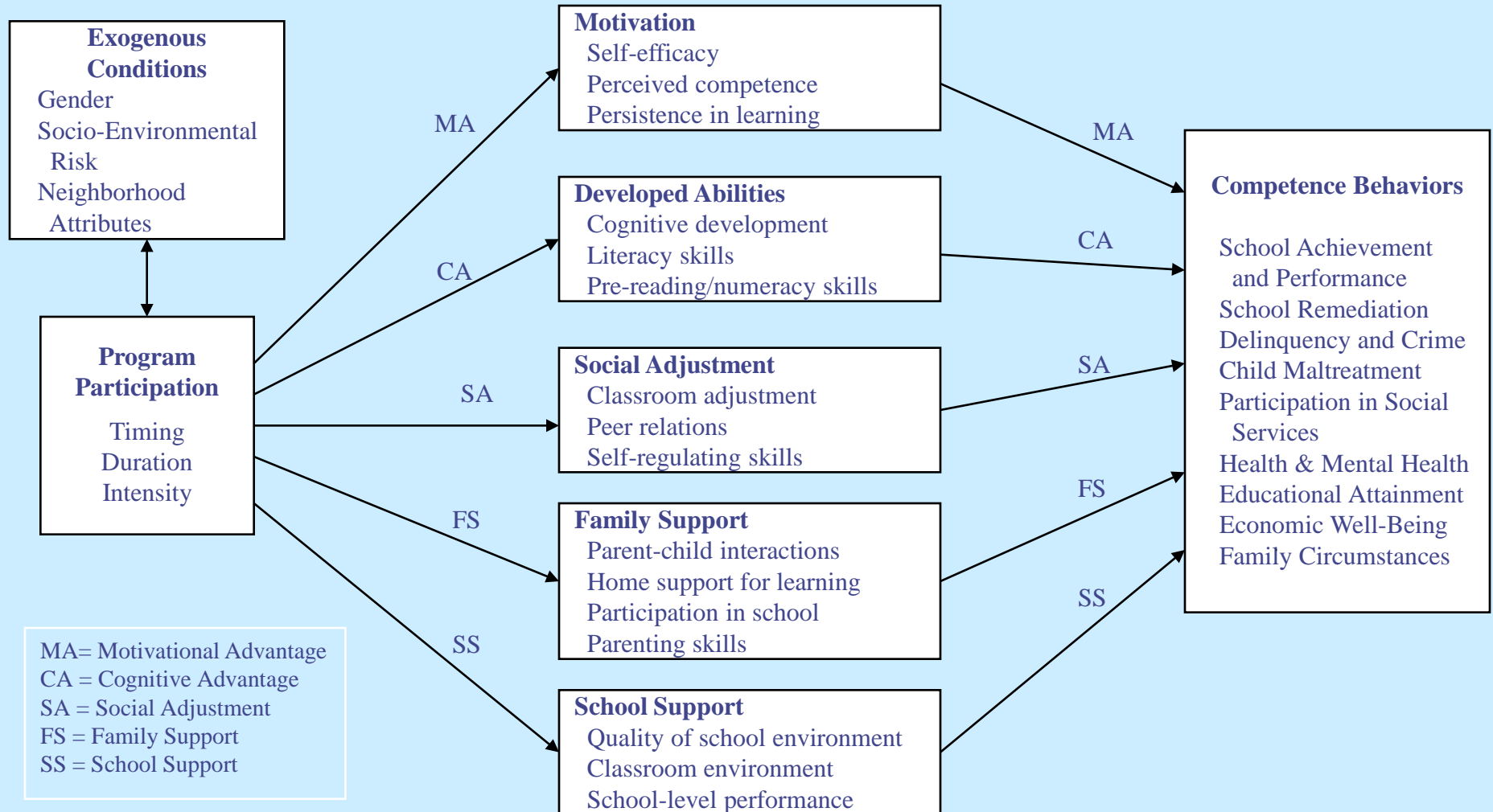


# Common Paths from Early Childhood to Adult Well-Being

**Early Childhood**  
Ages 3-9

**Ages 5-12**

**Adolescence to Adulthood**



# Recommendations

1. Strengthen investments in programs for 3-4 year-olds based on key principles of effectiveness.
2. Evidence supports increased investments in school transition programs and services.
3. Use CBA to better prioritize funding but evidence base is limited.

# Further Information

## Human Capital 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/)

[ajr@umn.edu](mailto:ajr@umn.edu)

# Recovery Rates in Select Studies

	Rate	Years of Follow up
Cornell Consort.	55%	10-15
Early Head Start	69%	2
Head Start Impact	81%	End of Prog
ECLS-K	50%	8-9