

The Role of Early Childhood Education in Human Capital Formation

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Human Capital

**Accumulated skills and knowledge
(acquired through education,
training, work experience)
that enhance labor productivity**

We know investing in education is important for gains in labor productivity.

But what aspects of education?

At what stage in a person's life?

**Large body of research from
various fields**

**(neuroscience, social sciences,
economics, psychology)**

**suggests that both cognitive and
non-cognitive skills are important
and complementary**

Cognitive

Academic, IQ, etc.

Non-Cognitive

Socio-emotional skills, Character,
Attentiveness, Perseverance ,
Impulse Control, Sociability, etc.

James Heckman

University of Chicago

Nobel Memorial Prize in Economics, 2000

in collaboration with

**Masterov, Cameron, Carneiro, Cunha,
Knudsen, Shonkoff and others**

Heckman's Findings

Intelligence and social skills
developed at an early age are
essential to success

**Early childhood development drives
performance in school and life**

“Skill begets skill”

“Learning begets learning”

Heckman's Conclusions

**Early investments
(pre-Kindergarten)
are the most effective and
produce the greatest returns in
human capital**

Rate of Return
for every dollar of investment
in early childhood
(0–5 years)
education
=
7% - 10%
per year

Social Benefits

Higher lifetime earnings

Greater high school completion rates

Healthier lifestyles

Reduced remediation/special education

Lower crime rate

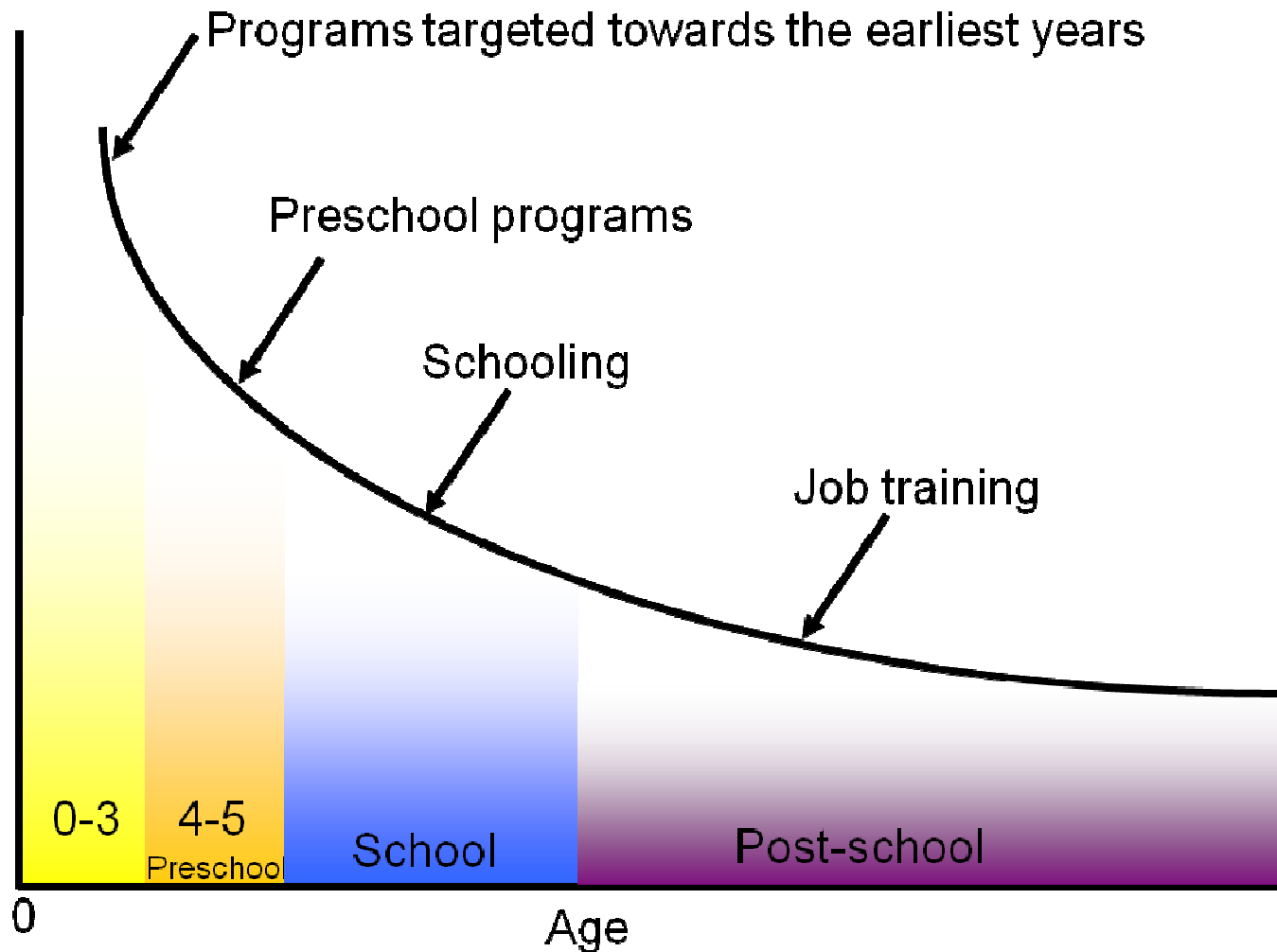
Lower social spending

Estimates from Illinois

High school graduates bring in \$400,000 more in lifetime earnings compared to high school dropouts

5% increase in male high school graduates saves \$ 379 million in incarceration and crime-related expenditures

Rates of Return to Human Capital Investment at Different Ages: Return to an Extra Dollar at Various Ages



Source: James Heckman. See <http://www.heckmanequation.org>

Perry Preschool

Ypsilanti, Michigan, 1962-1967

**Random selection of disadvantaged 3-year olds
for 2-year pre-school program**

**2.5 hour/5 day program combined
with weekly 90 minute home visit**

**Treatment and Control groups
Participants tracked for the next 30 years**

(Results: <http://www.highscope.org/Content.asp?ContentId=219>)

Early childhood investment for **at-risk children**

**closes achievement gap
reduces social costs**

and

**more efficiently promotes
economic growth**

**Interventions such as
reducing class size (K – 12)
yield only marginal gains**

**Waiting until age 5 is too late
to begin formal education for
disadvantaged children**

Remediation efforts
are
less effective
more costly
and
yield low/negative returns

Equity

(fairness and justice)

**is the traditional justification for
intervention**

**However, the accumulated body of
research on human capital formation
justifies intervention on grounds of**

Efficiency

(productivity and return on investment)

Heckman Equation

(Source: <http://www.heckmanequation.org>)

Invest	In educational and developmental resources for disadvantaged families to provide equal access to successful early human development.
+ Develop	Cognitive skills and social skills in children early – from birth to age five when it matters most.
+ Sustain	Early development with effective education through adulthood.
= Gain	More capable, productive and valuable citizens that pay dividends to America for generations to come.

**Excerpt from Professor James Heckman's letter
to the Simpson-Bowles National Commission
on Fiscal Responsibility and Budget Reform,
2010**

**“When one has dug themselves into a hole,
the solution is not to stop digging as much as to
start digging the hand and toe holds that
facilitate climbing out. Investing in early
childhood education is that hand and toe hold.”**

For more Information

<http://www.heckmanequation.org>