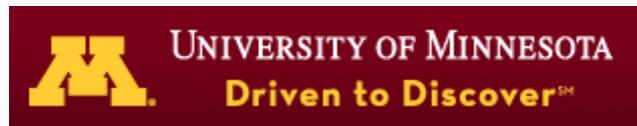


The First 1,000 Days Matter: For Better or For Worse

Aaron Sojourner
Carlson School of Management



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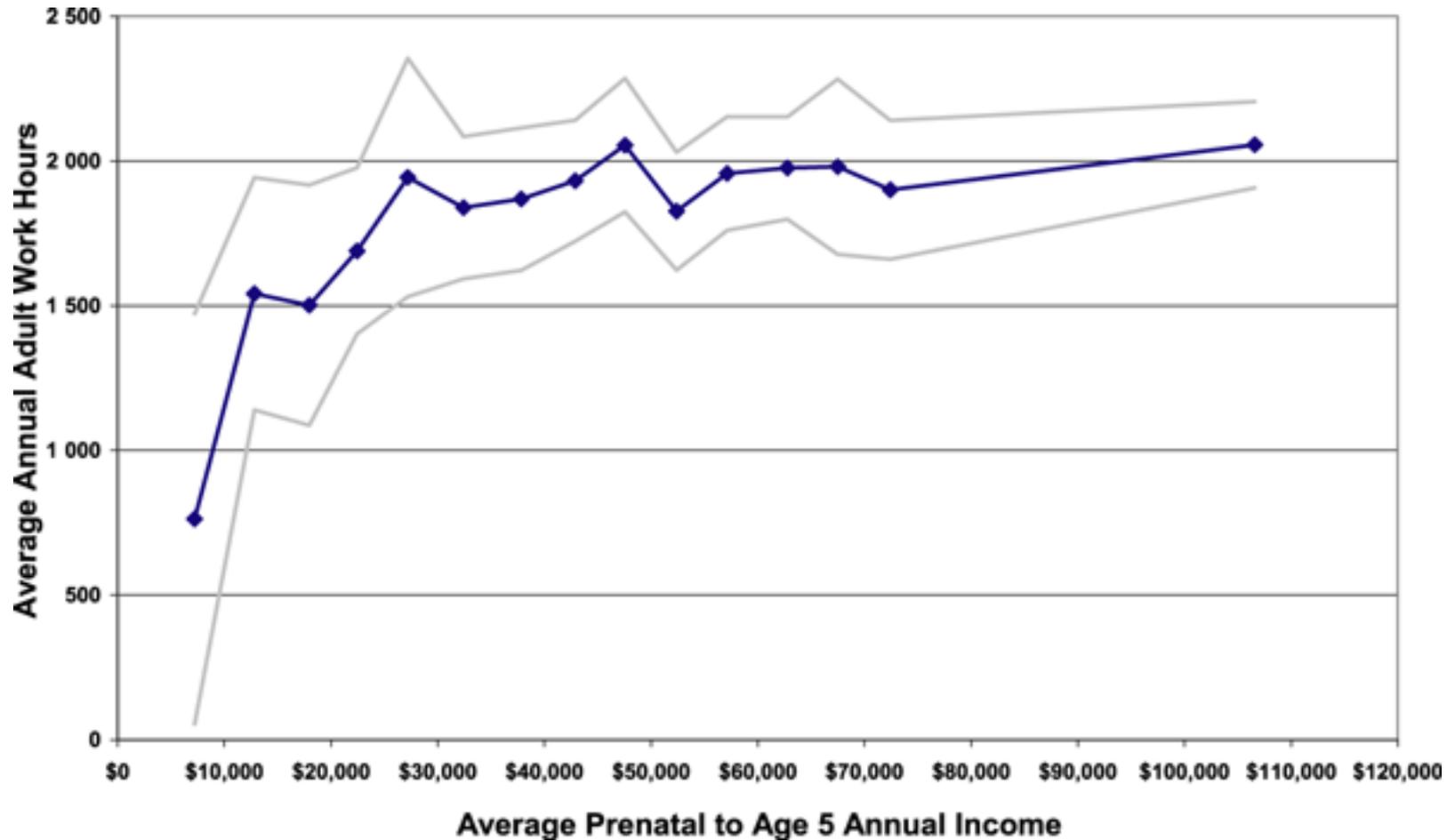
People drive community success

Wise investment in people can drive
community success

Outline

1. Income-based gaps in skill open up early in life but are not inevitable
2. We ask the most when families have the least
3. New tools to understand MN families' access to early care

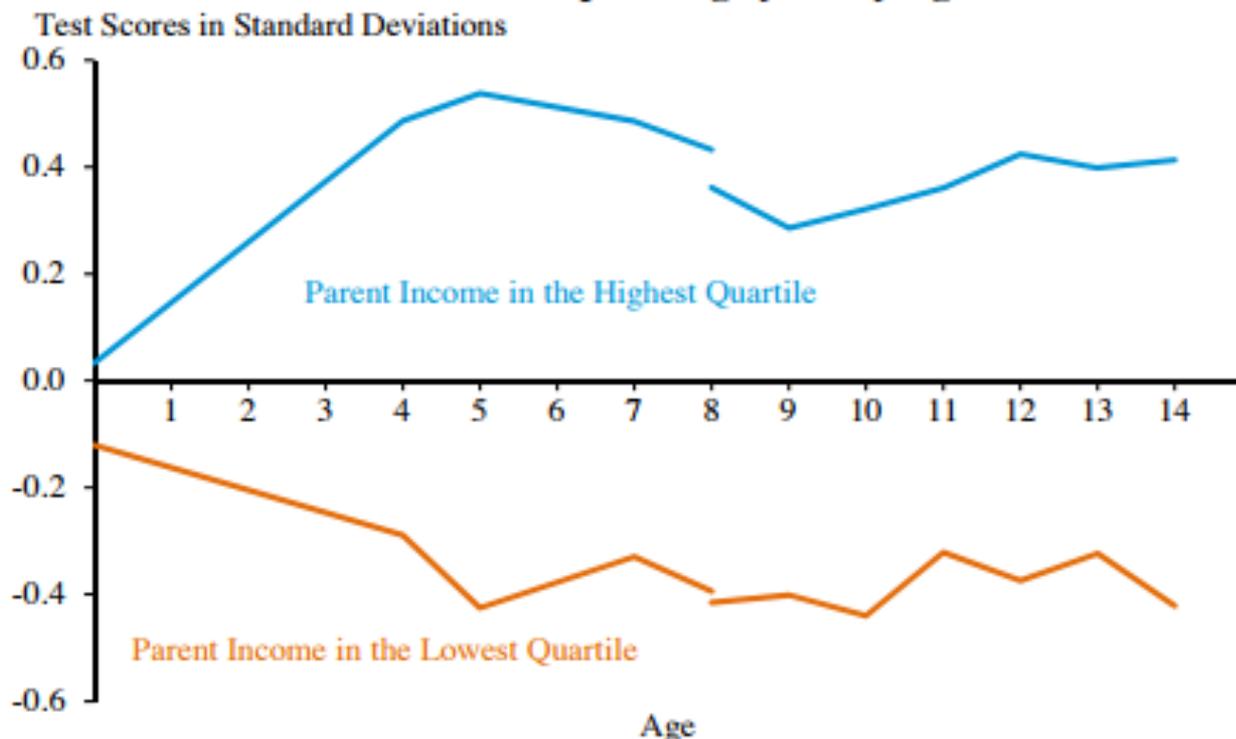
Early-Childhood Poverty and Adult Employment



Income-based gaps open early & stabilize

Figure 4-7

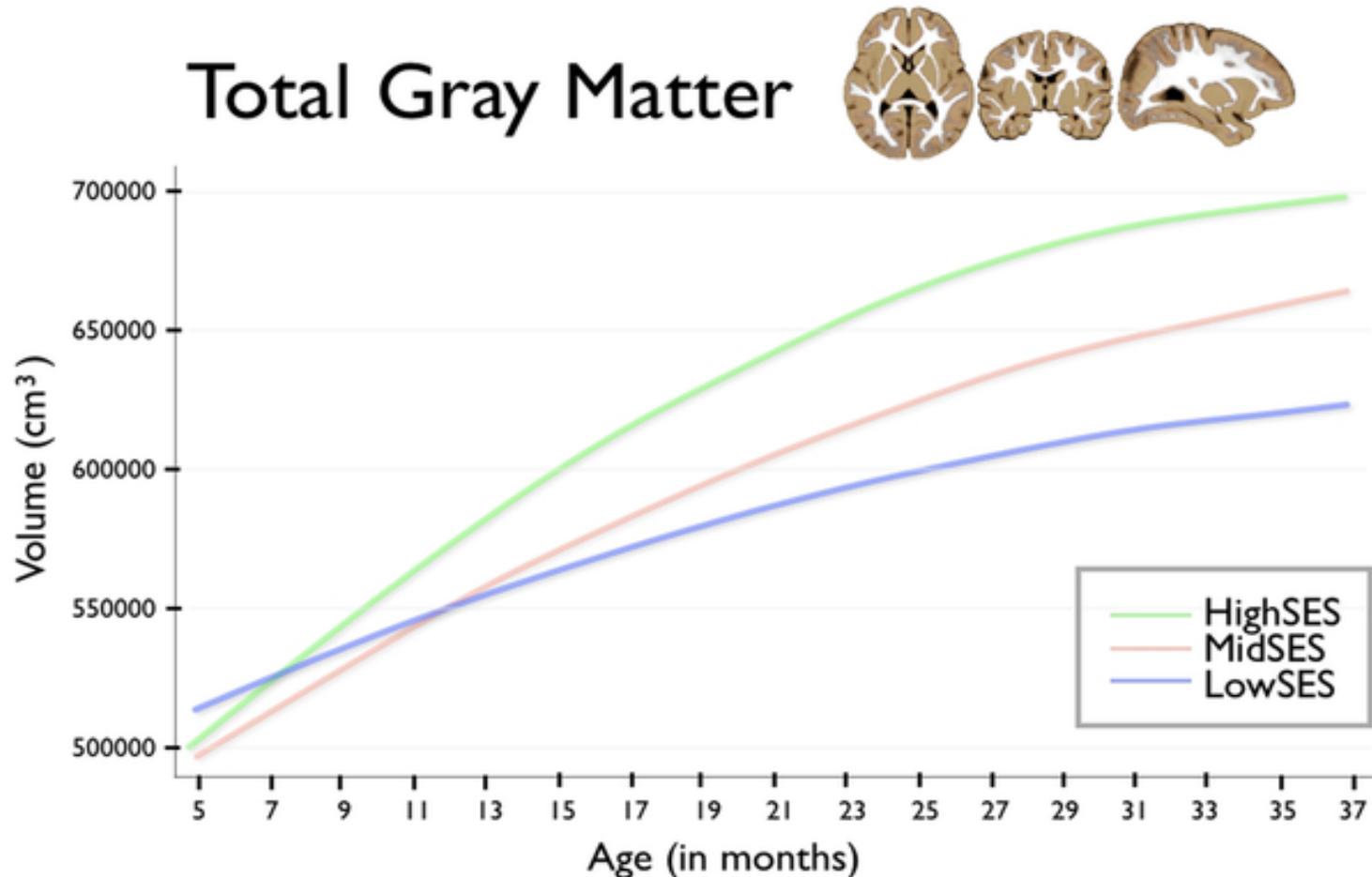
Achievement Gap is Largely Set by Age 5



Note: IQ scores are available through age 8. After age 8, math test scores are shown. A three year moving average is used for math scores.

Source: U.S. Collaborative Perinatal Project from Fryer and Levitt (2013) (through age 8); NLSY79 Child and Young Adult Supplement from Cunha et al. (2006) (after age 8); CEA calculations.

Income-based gaps open early (1)



Hanson JL, Hair N, Shen DG, Shi F, et al. (2013) Family Poverty Affects the Rate of Human Infant Brain Growth. PLoS ONE 8(12): e80954. doi:10.1371/journal.pone.0080954
<http://www.plosone.org/article/info:doi/10.1371/journal.pone.0080954>

Better early experiences can
break these relationships

An experiment

The Infant Health & Development Program (IHDP) recruited a sample at birth and randomly assigned a treatment.

[Brooks-Gunn et al, 1994; McCarton et al, 1997; Gross et al, 1997]

Age 0-1: weekly home visit from staff

Age 1-3: child eligible for child development center (CDC)

Free

Full-day

High-quality, Abecedarian curriculum

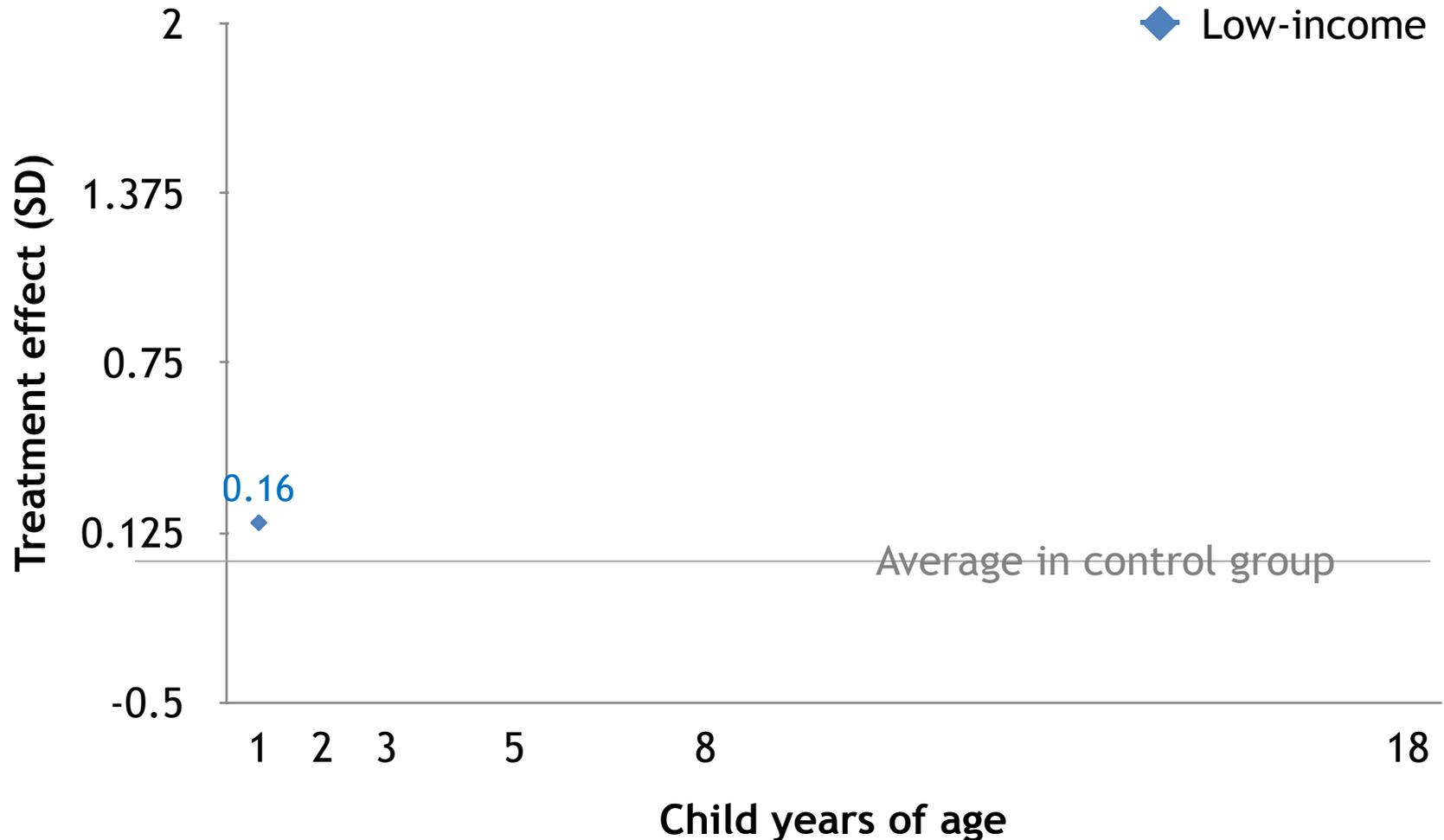
Free transportation

The experimental sample (N = 985): IHDP

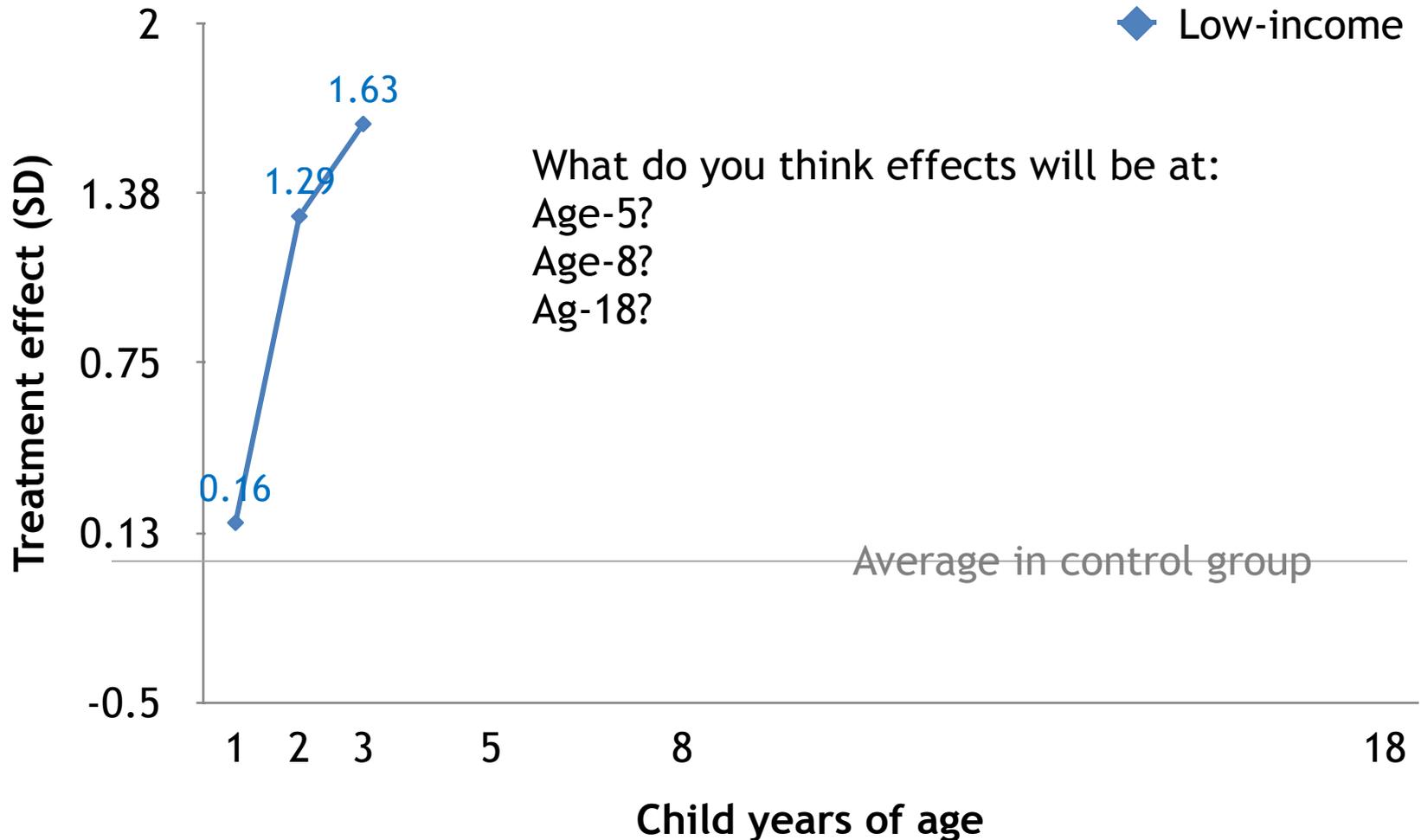
Ethnically and economically diverse sample
but only included children born:

- Low-birth weight (≤ 2.5 kg = 5.5 lbs)
- Premature (≤ 37 wks)
- In one of 8 research hospitals.
- Starting January 7, 1985 until fully enrolled
- Control = 608; Treatment = 377.

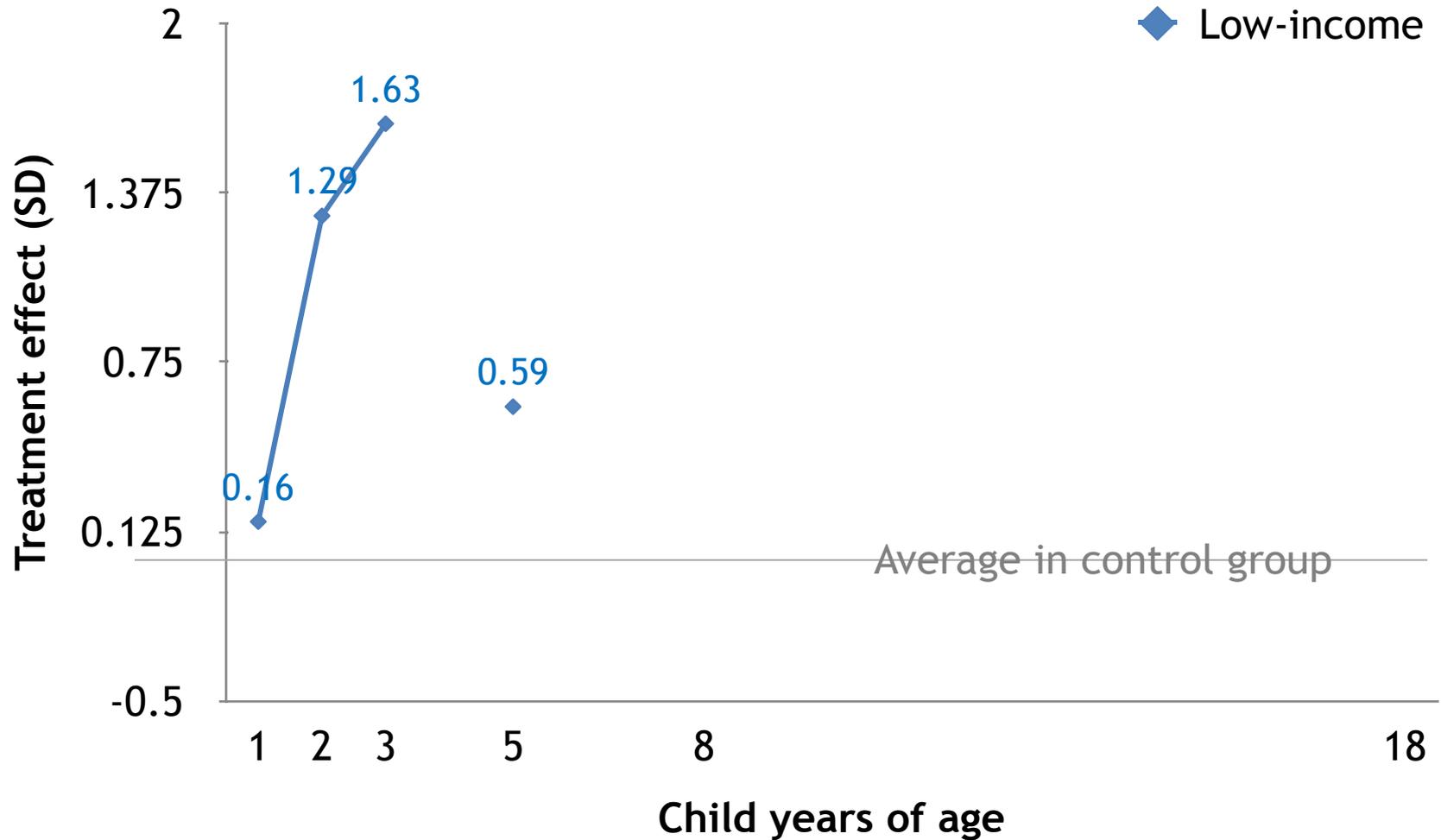
High LBW: little effect on “IQ” at start of child-care intervention



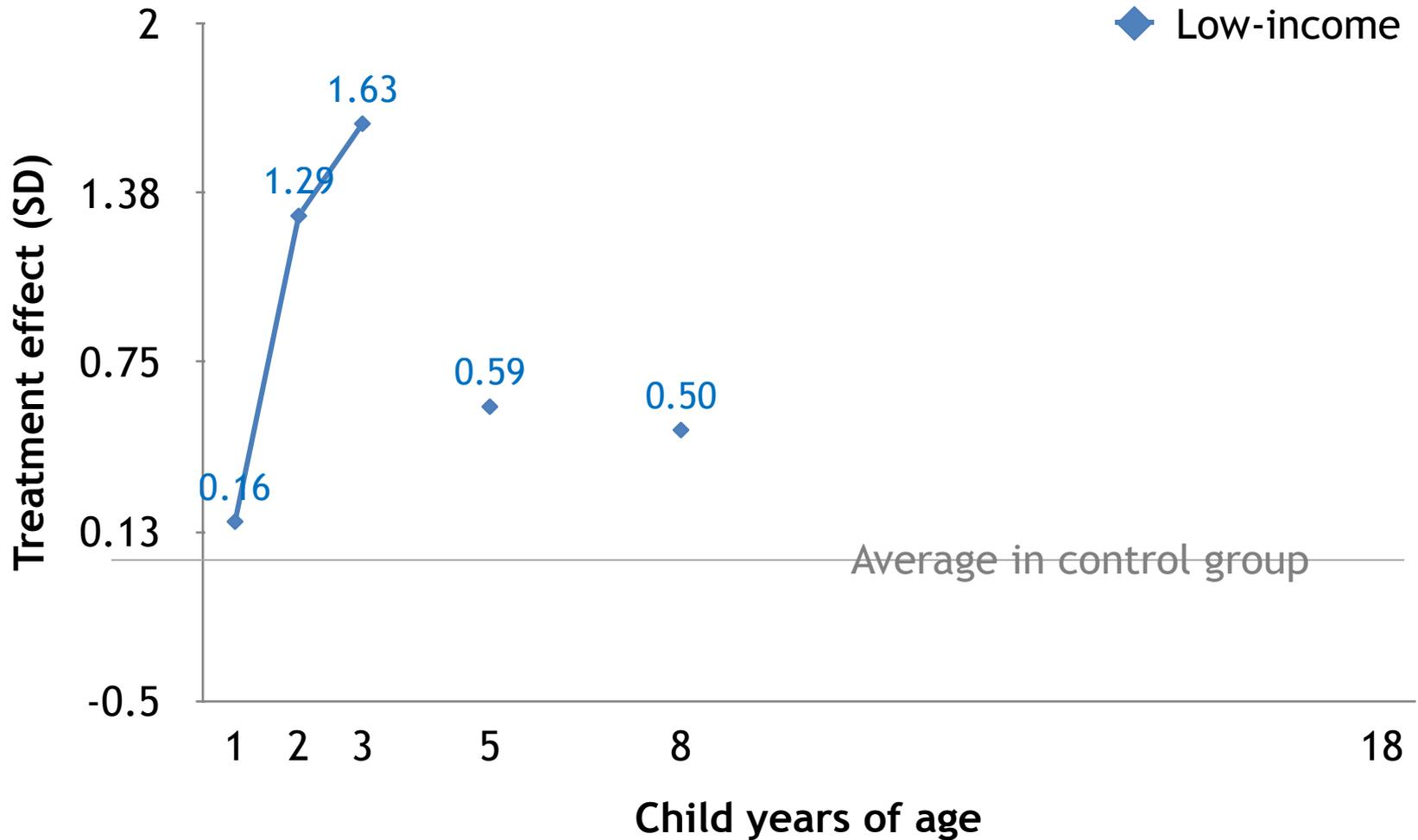
During child-care intervention: enormous effects on IQ measures



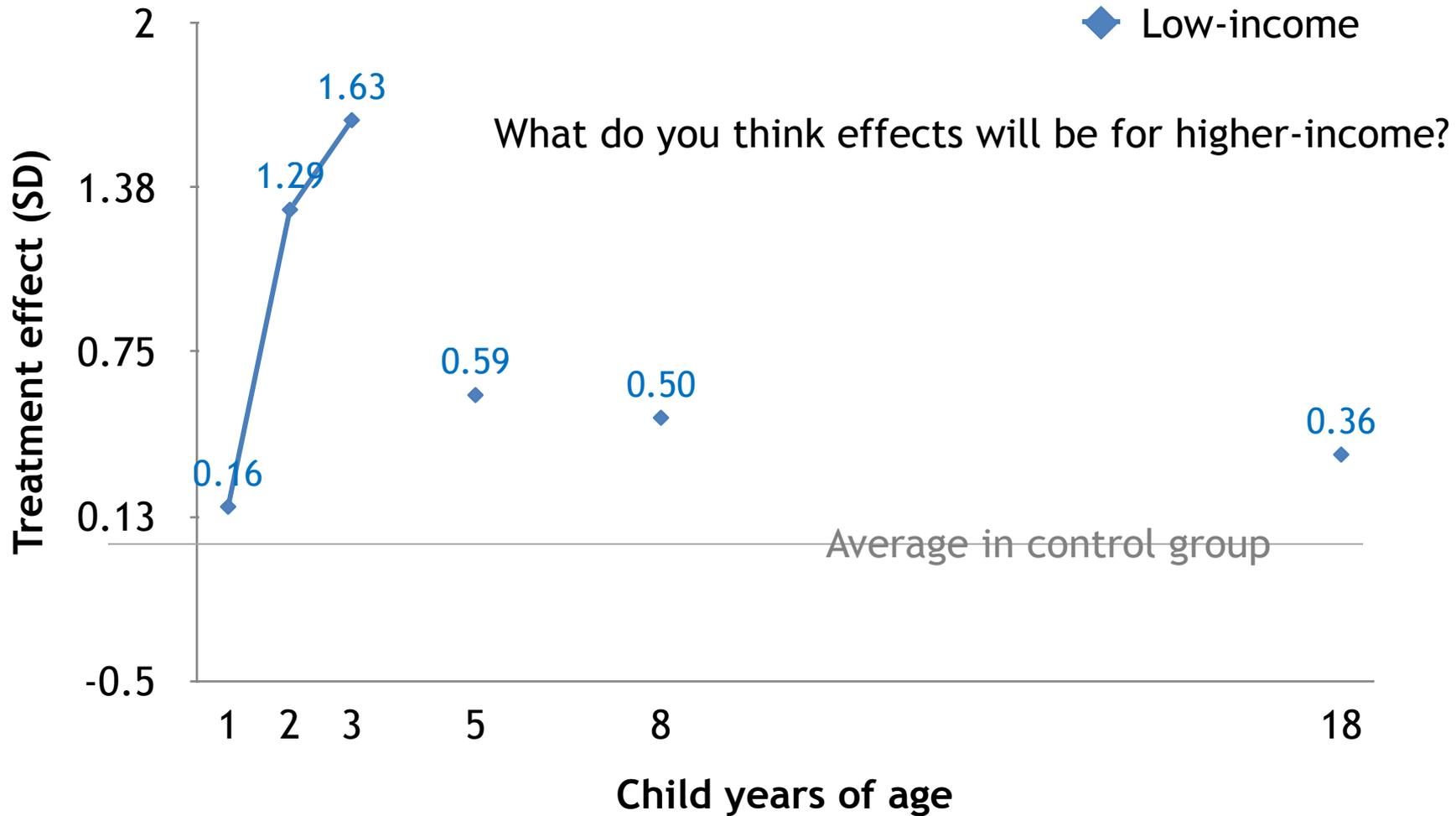
2 years after intervention end: large, positive effect at school-entry



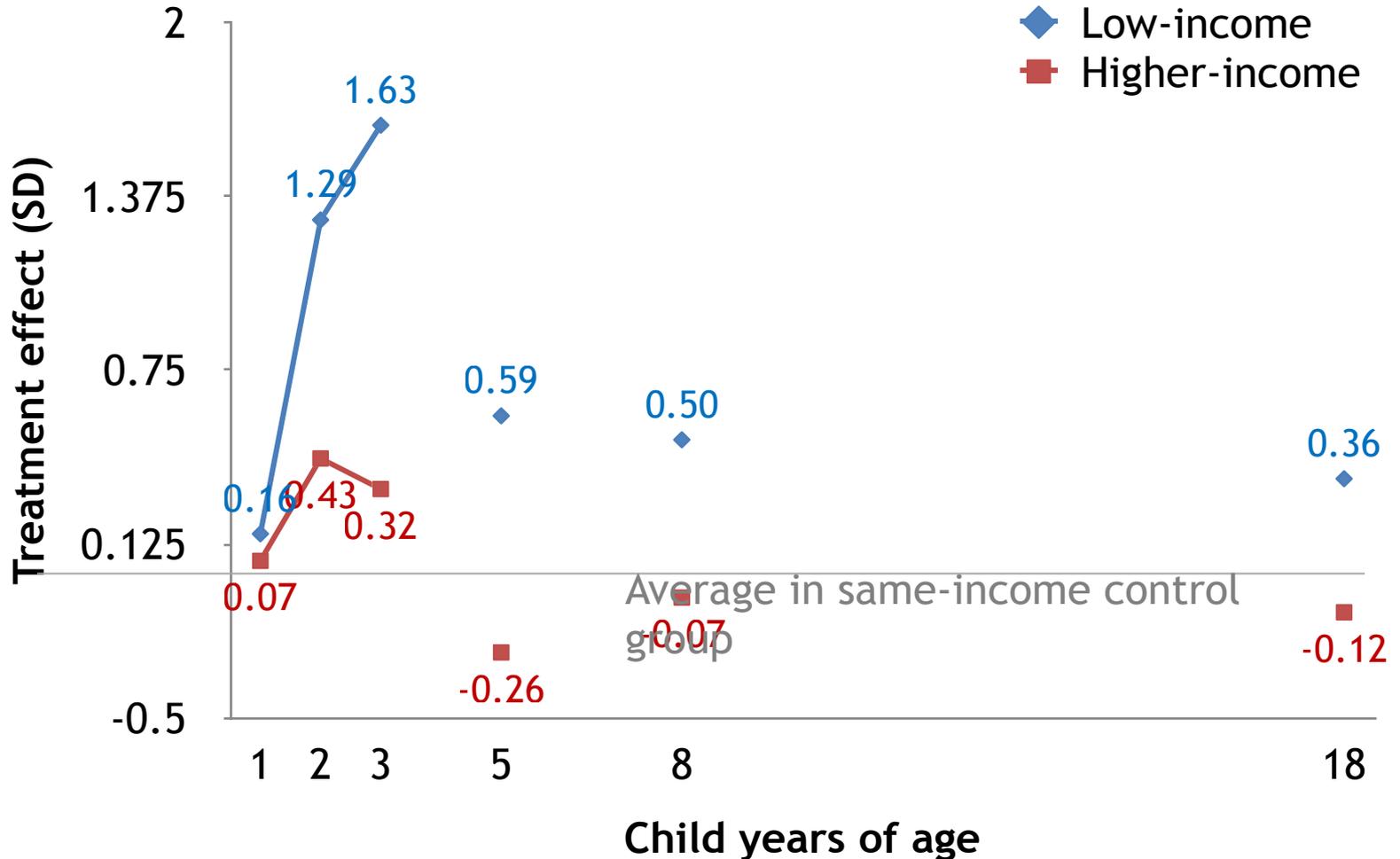
5 years after intervention end: large, positive effect



15 years after intervention end: evidence of persistence



For **higher-income**, effect on IQ trends much weaker



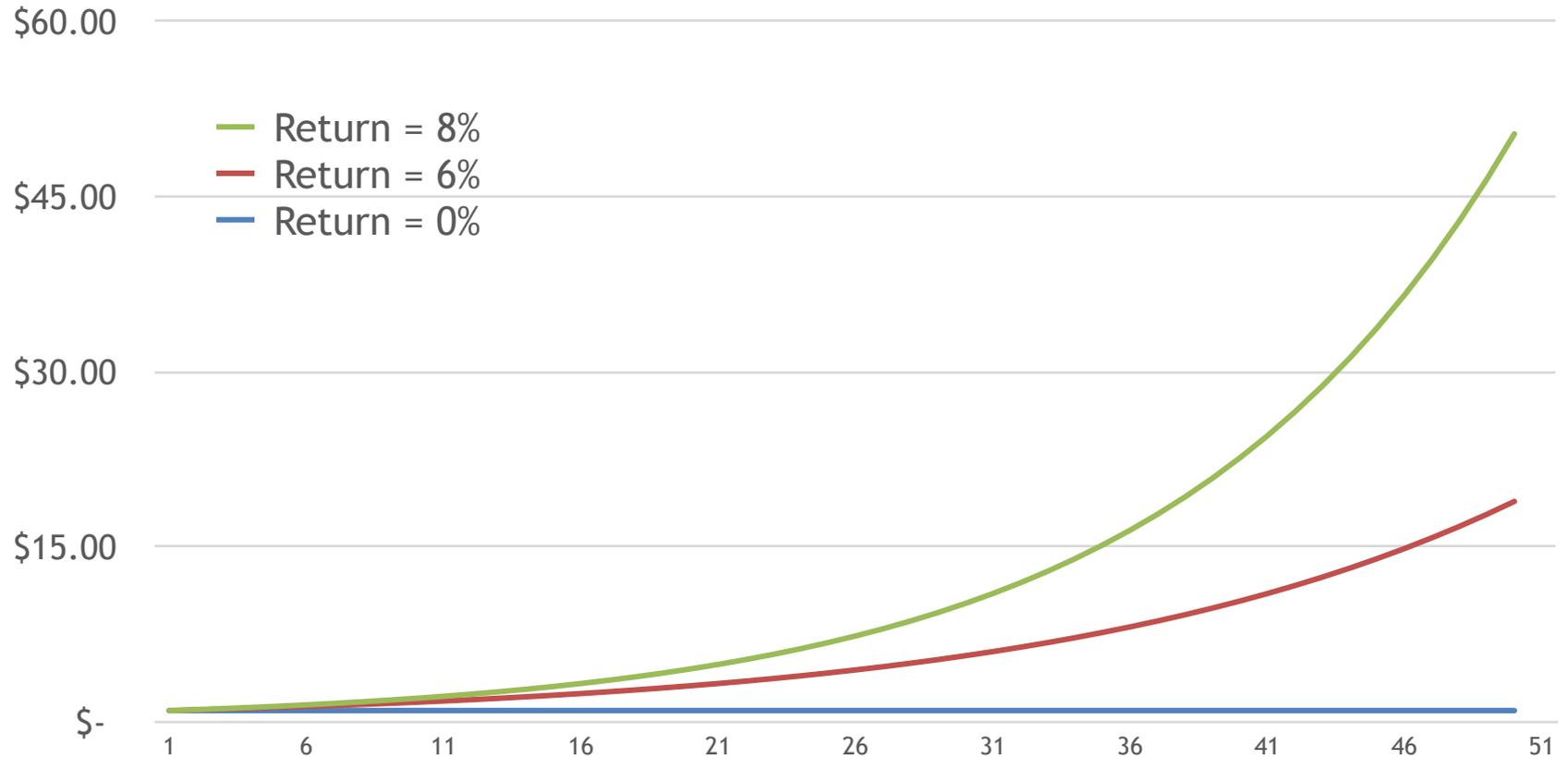
Returns can exceed those to stock market (5.8% since WW2)

Table 8
Comparison with previous studies.

Author	Rolnick and Grunewald (2003) ^a	Belfield et al. (2006) ^b		This paper ^c					
	0%	0%		0%			50%		
Deadweight cost	All	Male	Female	All	Male	Female	All	Male	Female
Education cost	9034	14,382	2349	4325	11,318	(5547)	6434	16,819	(8227)
Earnings	43,583	68,429	82,690	78,010	42,965	127,485	78,010	42,965	127,485
Crime cost	101,132	386,985	14,602	66,780	101,924	17,164	75,062	112,248	22,564
Welfare cost	381	3118	(1333)	3698	2421	5502	5547	3631	8253
Total benefit	154,130	472,914	98,309	152,813	158,627	144,605	165,053	175,662	150,075
Initial program cost	17,759	17,759	17,759	17,759	17,759	17,759	26,639	26,639	26,639
Benefit/cost ratio, unadj. ^d	8.7	26.6	5.5	8.6	8.9	8.1	6.2	6.6	5.6
(s.e.) ^e	(n.a.)	(n.a.)	(n.a.)	(3.9)	(4.3)	(5.0)	(3.0)	(3.9)	(3.6)
Benefit/cost ratio, adj. ^f	n.a.	n.a.	n.a.	9.2	9.8	8.0	6.6	5.4	7.3
(s.e.) ^e	(n.a.)	(n.a.)	(n.a.)	(3.5)	(4.0)	(4.7)	(2.7)	(3.0)	(3.2)
IRR to society, unadj. (%) ^d	16.0	21.0	8.0	8.6	10.6	11.6	8.0	9.8	10.2
(s.e.) ^e	(n.a.)	(n.a.)	(n.a.)	(2.6)	(2.8)	(3.2)	(2.9)	(3.4)	(3.1)
IRR to society, adj. (%) ^f	n.a.	n.a.	n.a.	8.3	10.4	11.0	7.7	9.7	9.5
(s.e.) ^e	(n.a.)	(n.a.)	(n.a.)	(2.4)	(2.2)	(2.9)	(2.6)	(3.0)	(2.7)

Notes: All monetary values are in year-2006 dollars. Discount rate is assumed to be 3 percent following GAO (1991) and OMR (1992).

8% is much more than double 6%



2.

We ask most when families have least

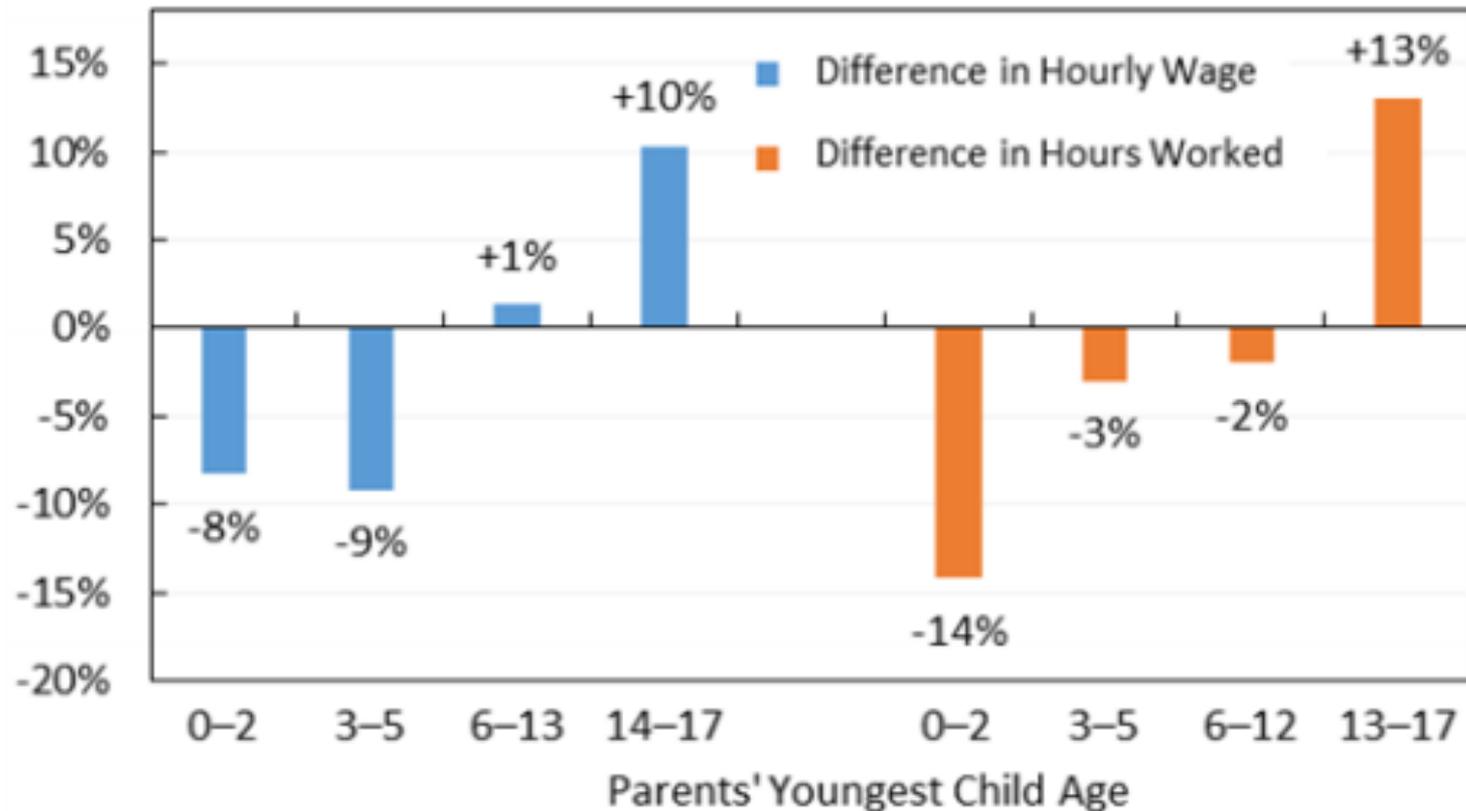
COUNCIL OF ECONOMIC ADVISERS ISSUE BRIEF
DECEMBER 2016

THE DISCONNECT BETWEEN RESOURCES AND NEEDS WHEN INVESTING IN CHILDREN

- Least private resources early
- Most private responsibility early

Current earning power

Percent Difference from the Average Across All Parents

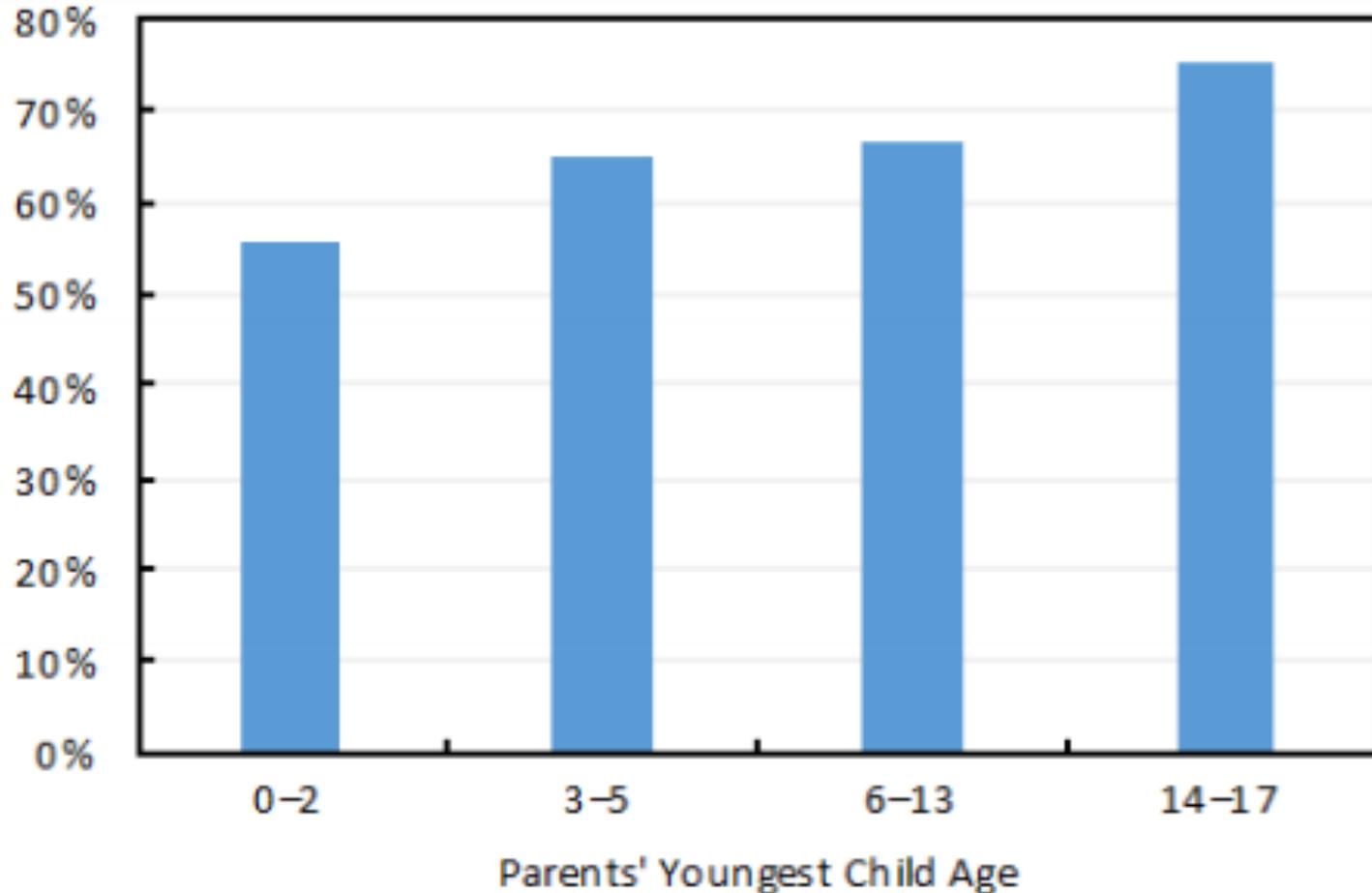


Note: Hours worked refers to average hours spent in work related activities. Hourly wage refers to the median hourly wage.

Source: CPS 2016; American Time-Use Survey 2015; CEA calculations.

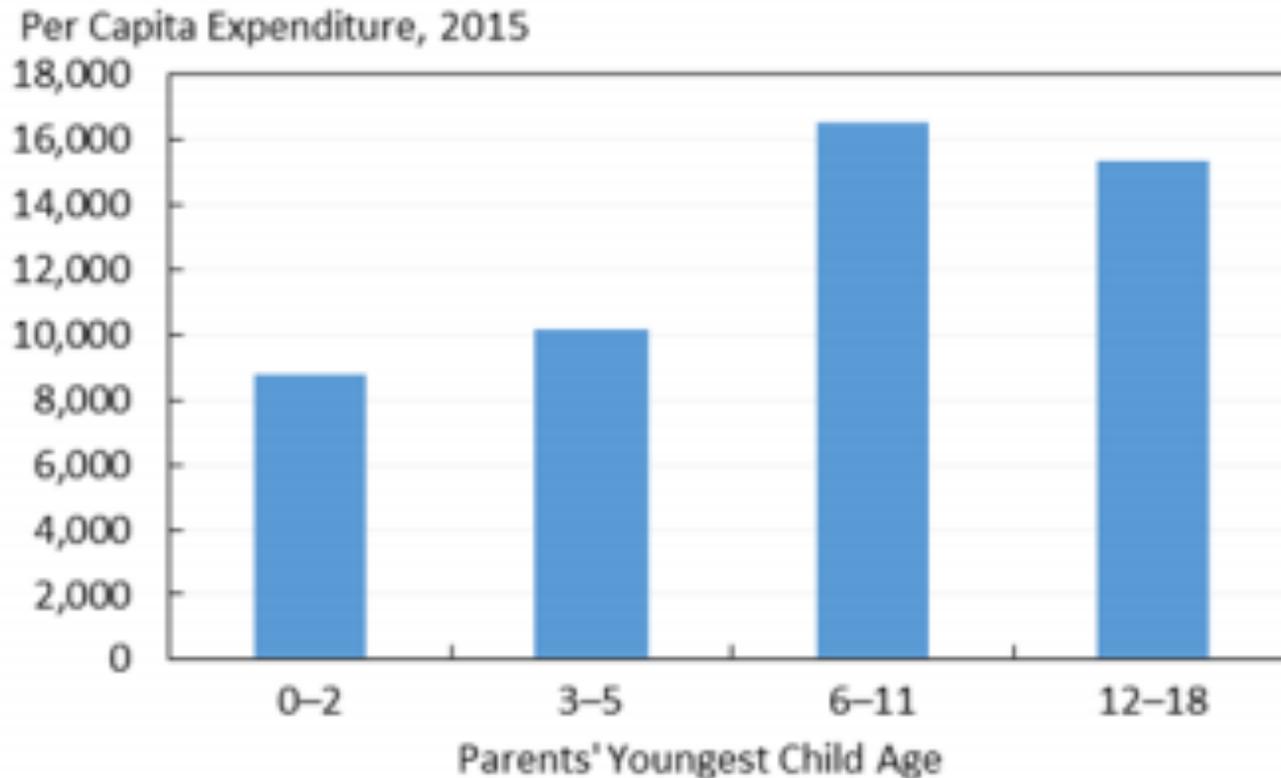
Access to future income

Share with a Credit Score of 650 or Above



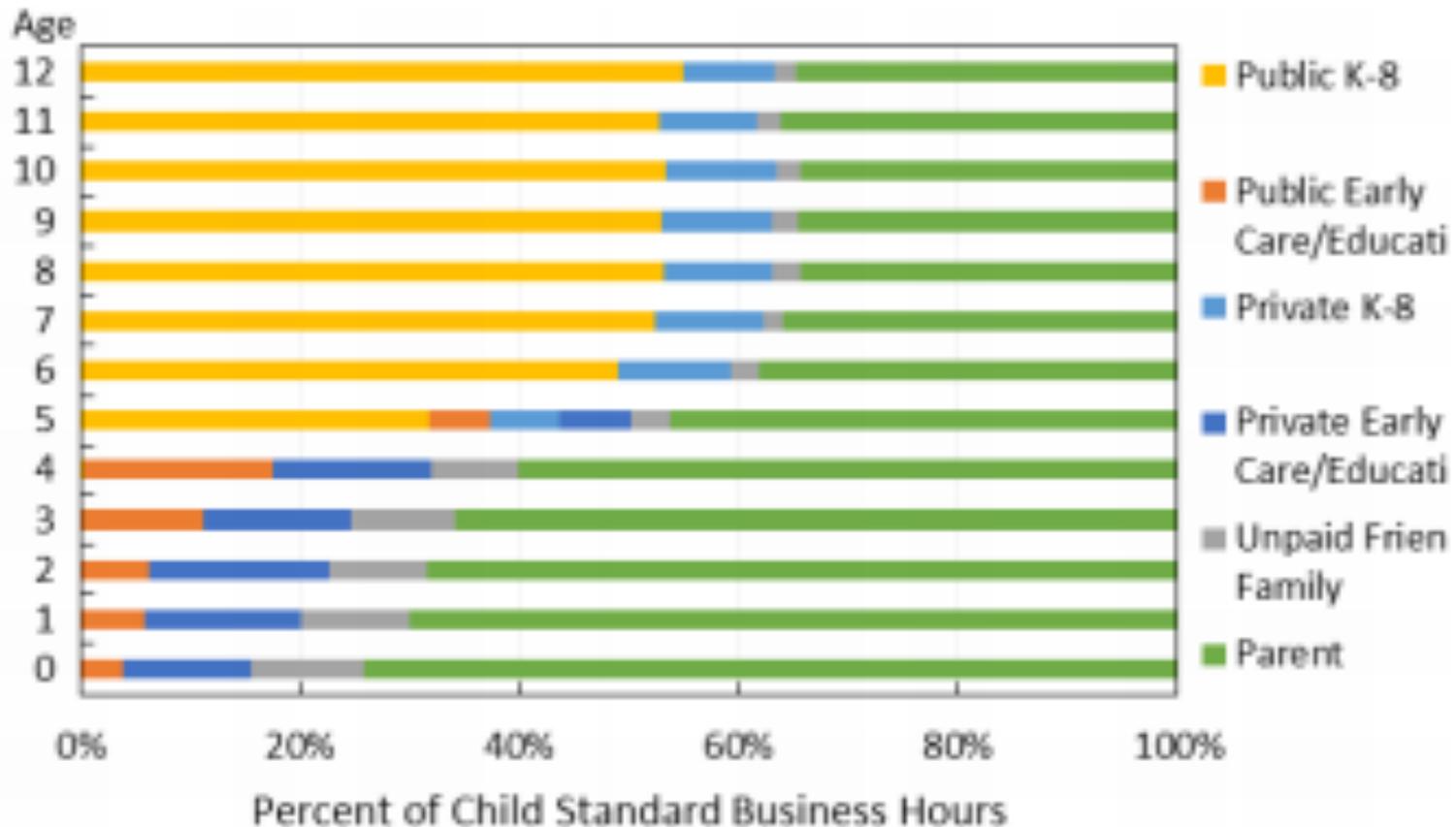
Source: American Life Panel's 2012 Survey of Consumer Payment Choice; CEA calculations.

Least public investment in youngest: public expenditure per child



Note: Federal funding includes refundable portions of tax credits but not reductions in taxes. State funding includes state earned income tax credits but no other tax provisions.
Source: Edelstein et al. (2016); Edelstein et al. (2012); CEA calculations.

Publicly-financed care & education: 5 hours/child-wk under age 5

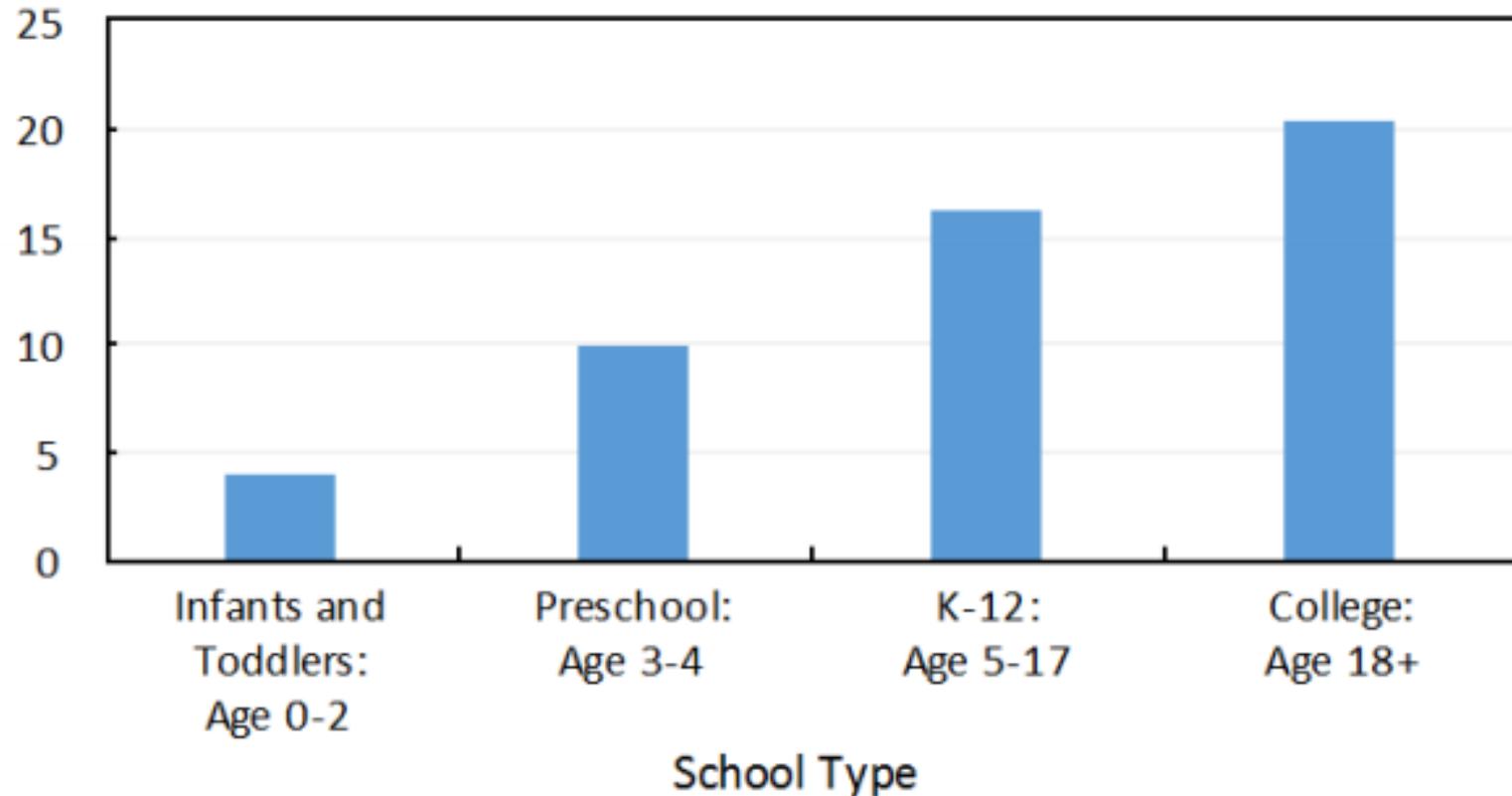


Note: We define standard business hours to be Monday to Friday, 8am to 6pm. Unpaid friends and family include all individuals who receive no payment for caretaking. Public time refers to time spent with K-8, Pre-K, Head Start organizational, and home-based individual providers where the overall cost to parents is \$0, even if there is a co-payment covered by the government. Private time refers to all other time spent with organizational or individual caregivers.

Source: NSECE; CEA calculations

No way to do it cheaply & well: parent's income or another adult

Average Number of Pupils per Teacher



Note: Infant and toddlers encompasses Early Head Start, preschool encompasses Head Start, and college encompasses institutions that predominantly grant certificates or associate or bachelor degrees.

Source: HHS; Department of Education; College Scorecard 2016; CEA calculations

How much does public invest annually in MN kids' care, by age-income?

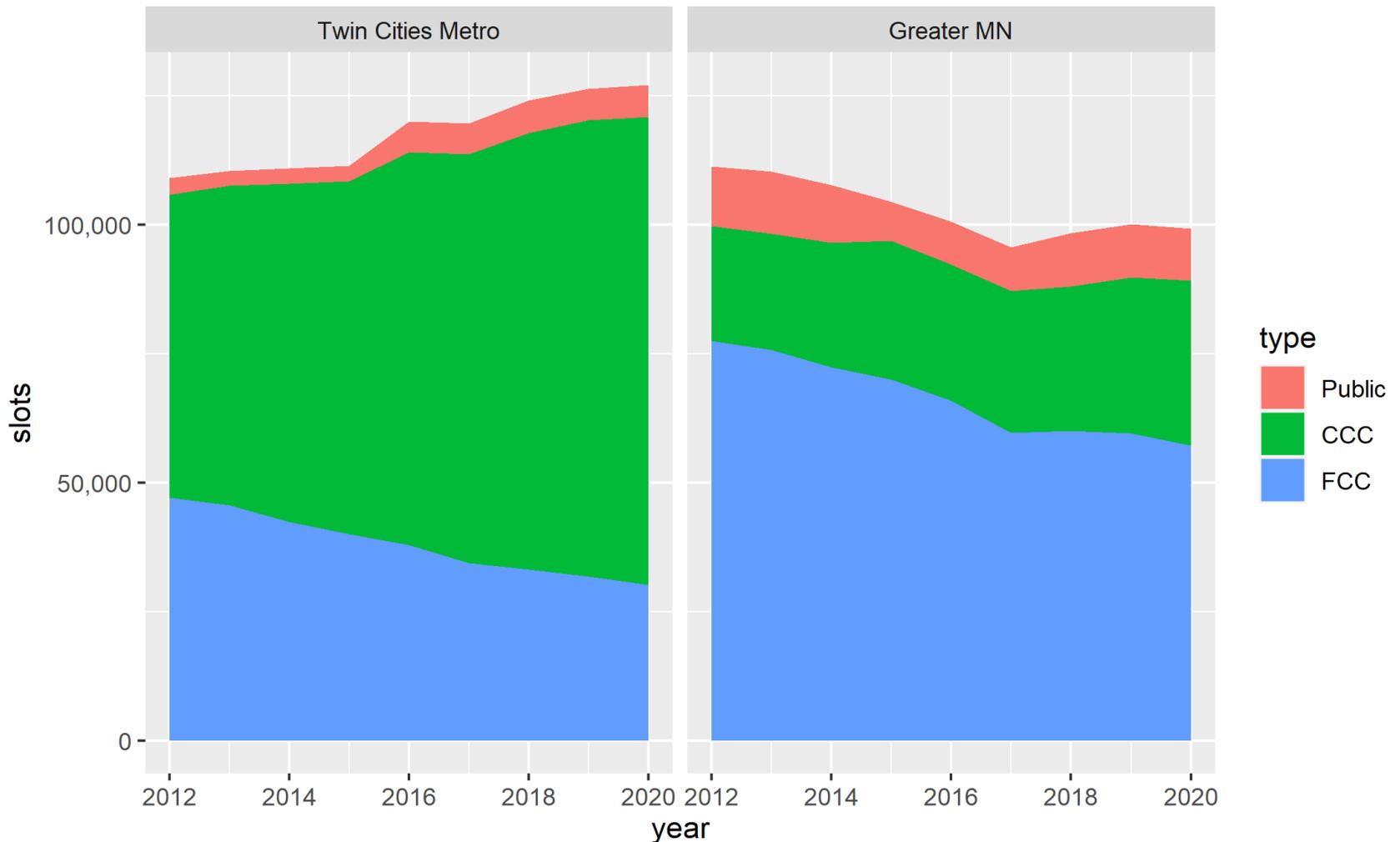
Family income range: As % of poverty level	Age 0-2	Age 3-4	Age 0-4
Low: up to 185%	\$2,243	\$6,474	\$3,936
Moderate: 185-300%	\$200	\$912	\$485
Higher: above 300%	\$320	\$609	\$436
Across incomes	\$901	\$2,511	\$1,545

State of Minnesota invests \$10,000+ per child-year from during age 5 to 17 in K12 + more from feds. Source: Grunewald & Sojourner.

What else could we possibly expect?

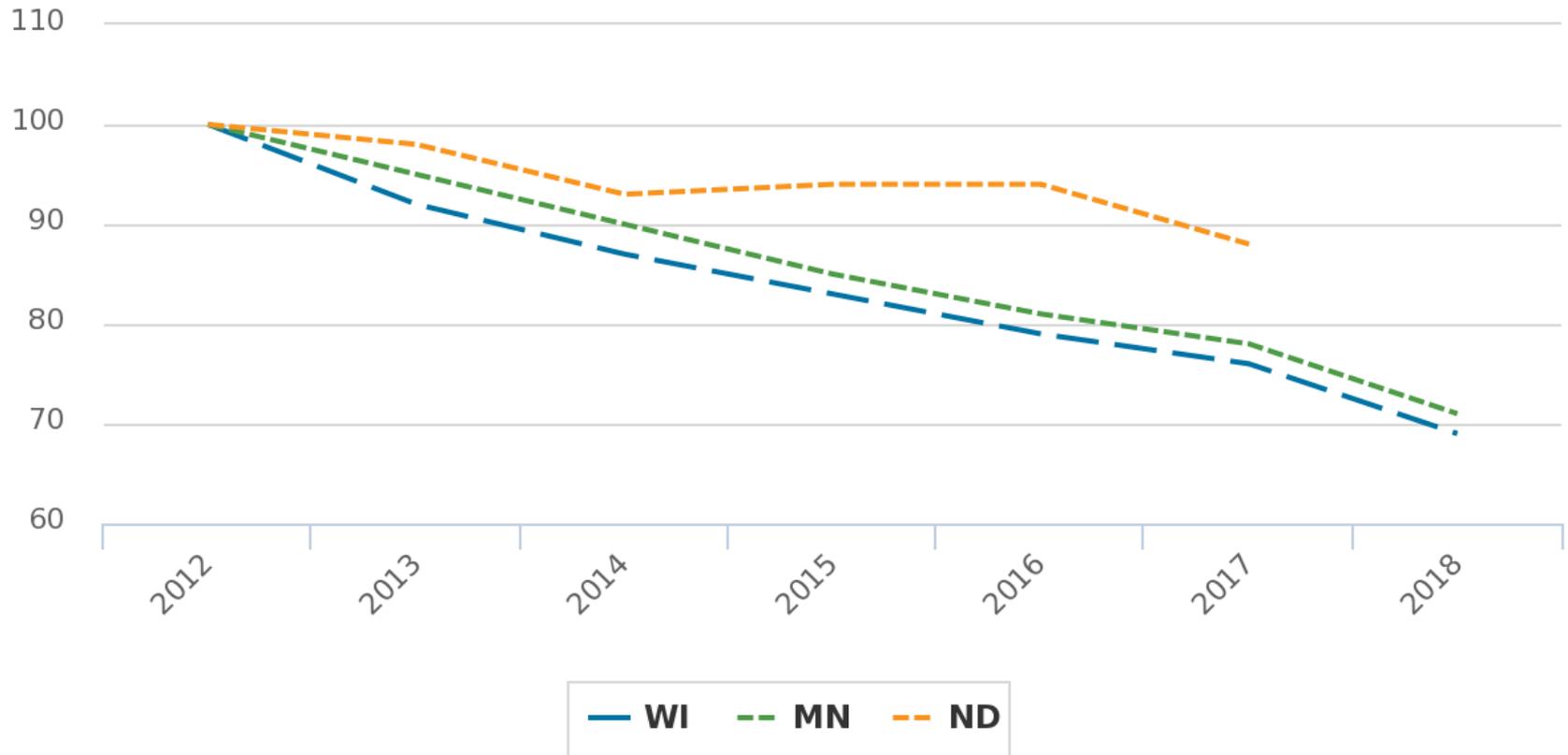
- Crises in child care market
 - **Shortages:** not enough slots
 - **Unaffordable:** Prices too high & slots too far for families
 - **Staff turnover or exits:** child care workforce instability
 - **Closings:** weak incentives for suppliers to operate
- Crises in young families' budgets
 - Hard for parents to work or afford to stay home

Capacity trends: Family care ↓, Centers ↑, Public abt =



Exits of family child care not just in MN

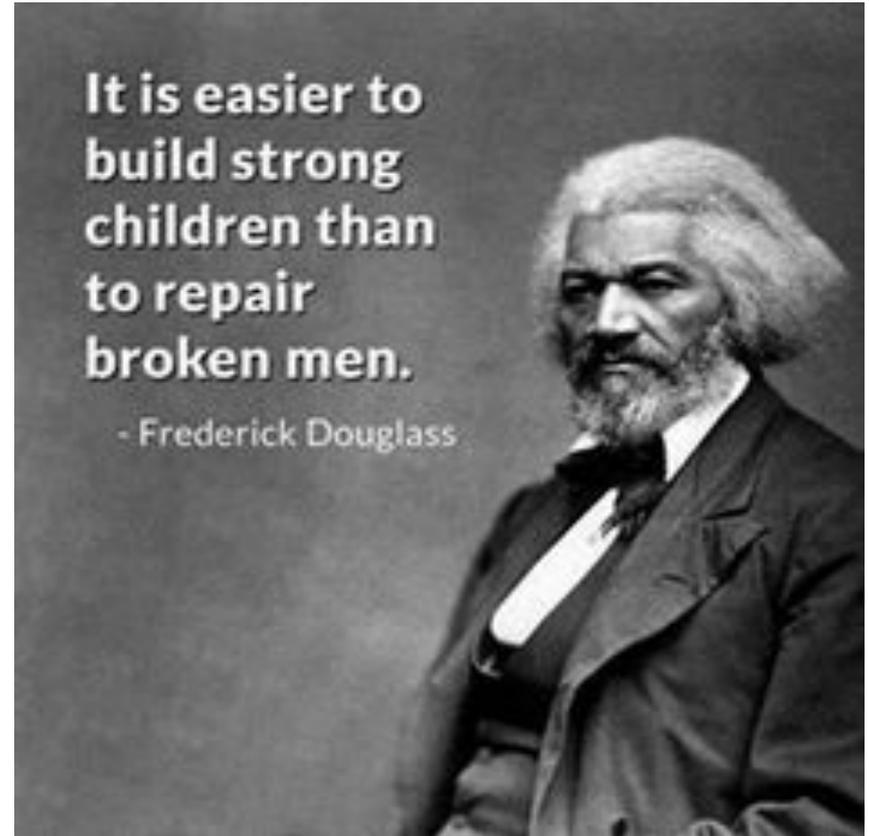
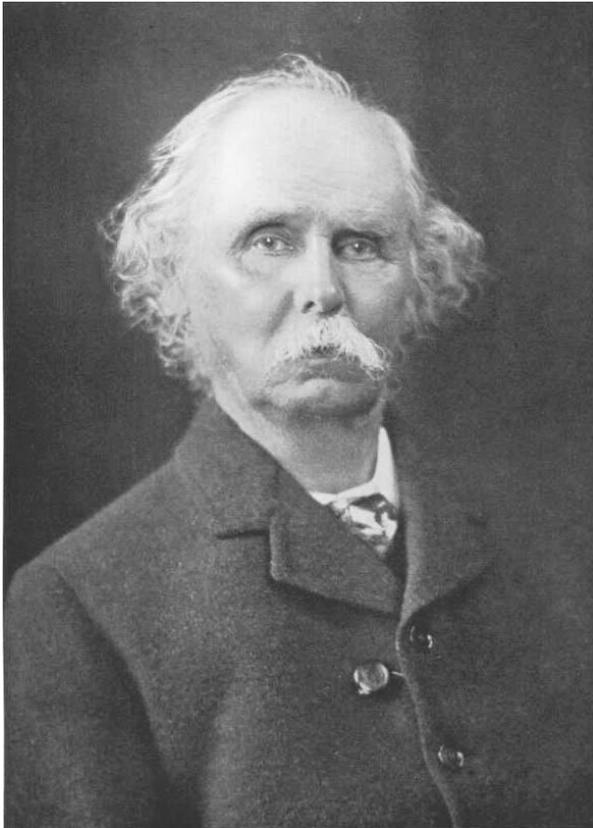
Capacity of family child care providers by state (2012=100)



Wrapping up

- Early experiences have lifelong consequences. A scarce investment opportunity, not burden.
- We ask the most of families when they have the least. Crises are entirely predictable.
- Better analysis can improve decisions about where to invest private & public resources.

Thank you!
asojourn@umn.edu

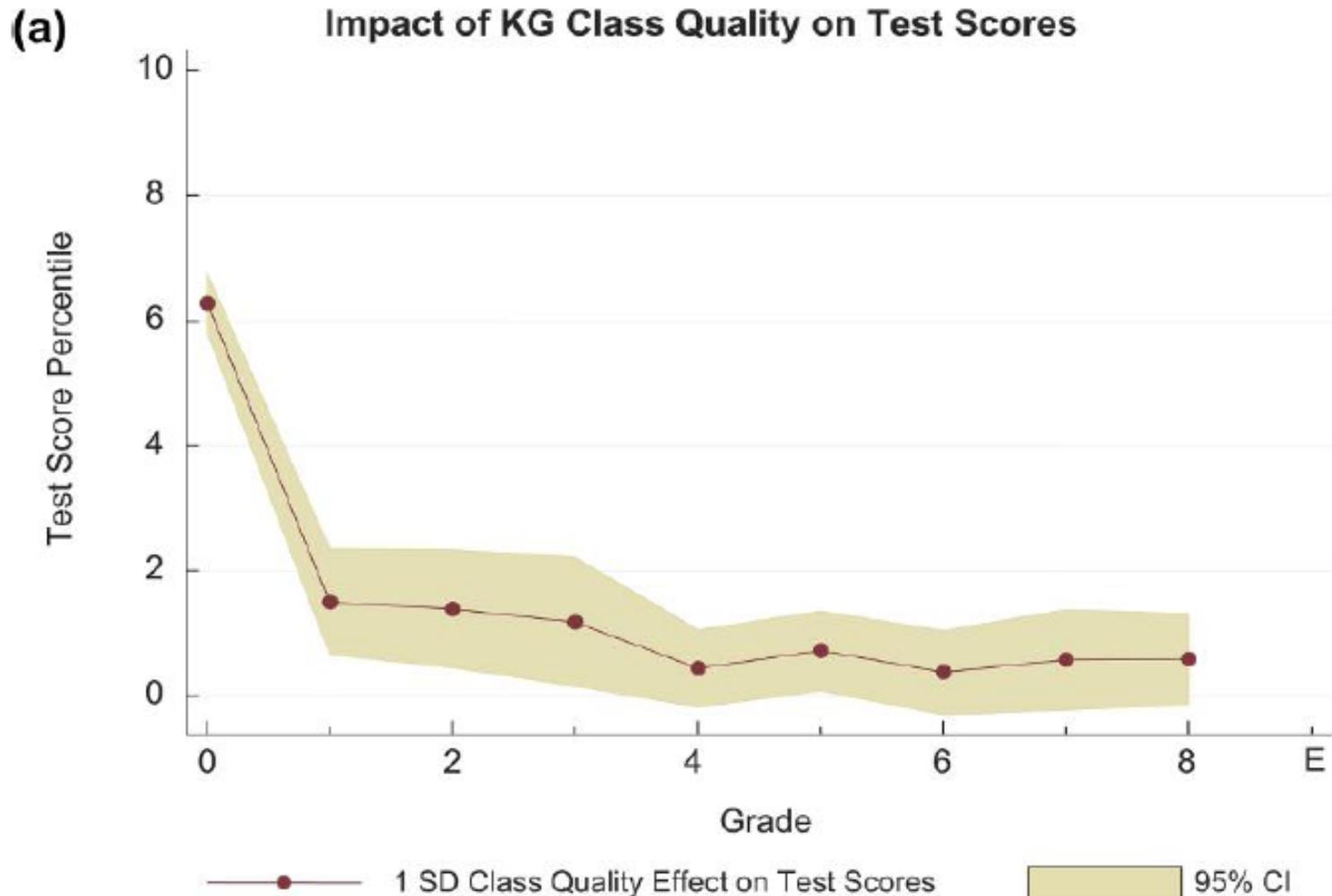


The most valuable of all capital
is that invested in human
beings.

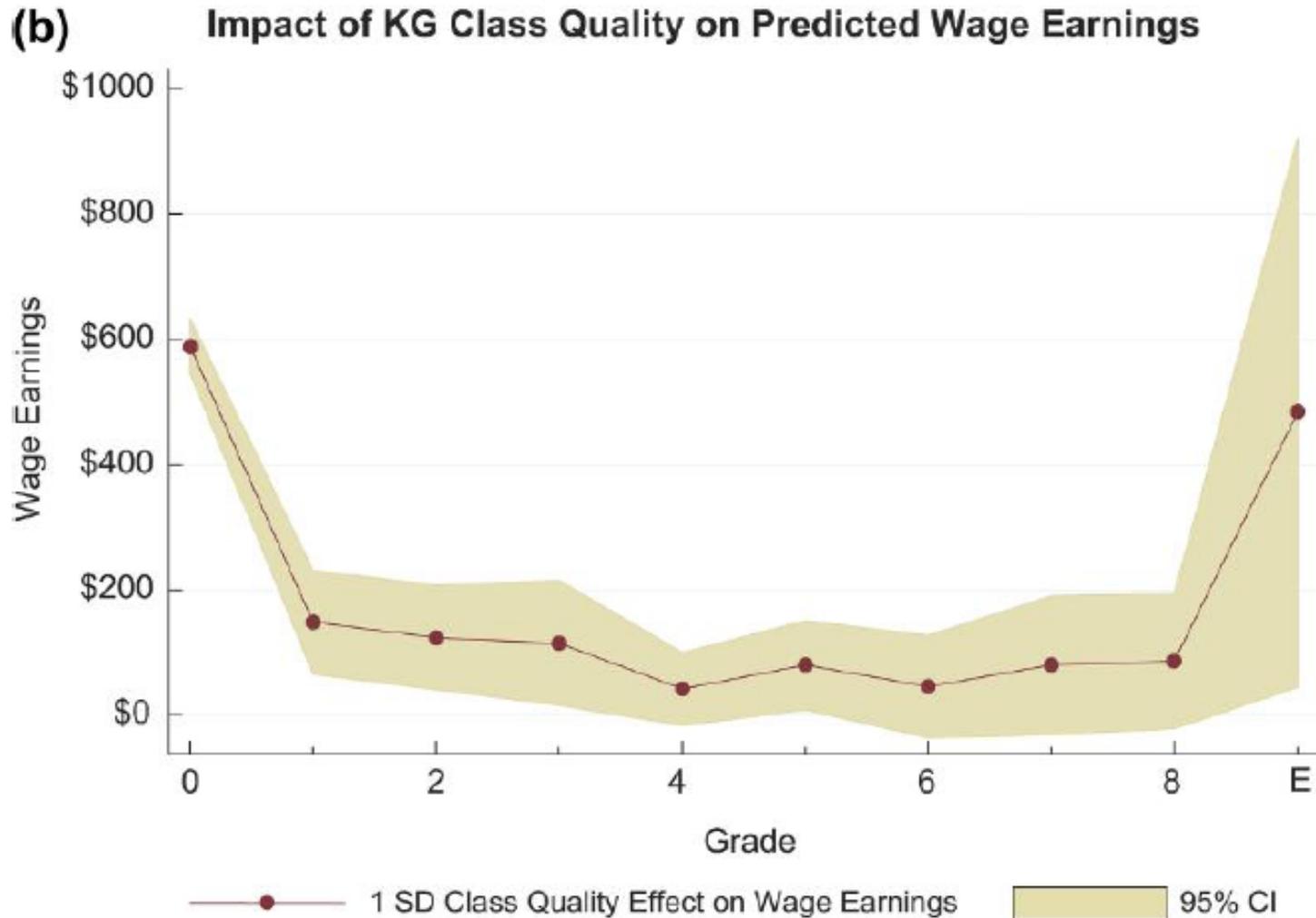
- Alfred Marshall, *Principles of Economics*

Appendix

2. What about test-score fade-out?



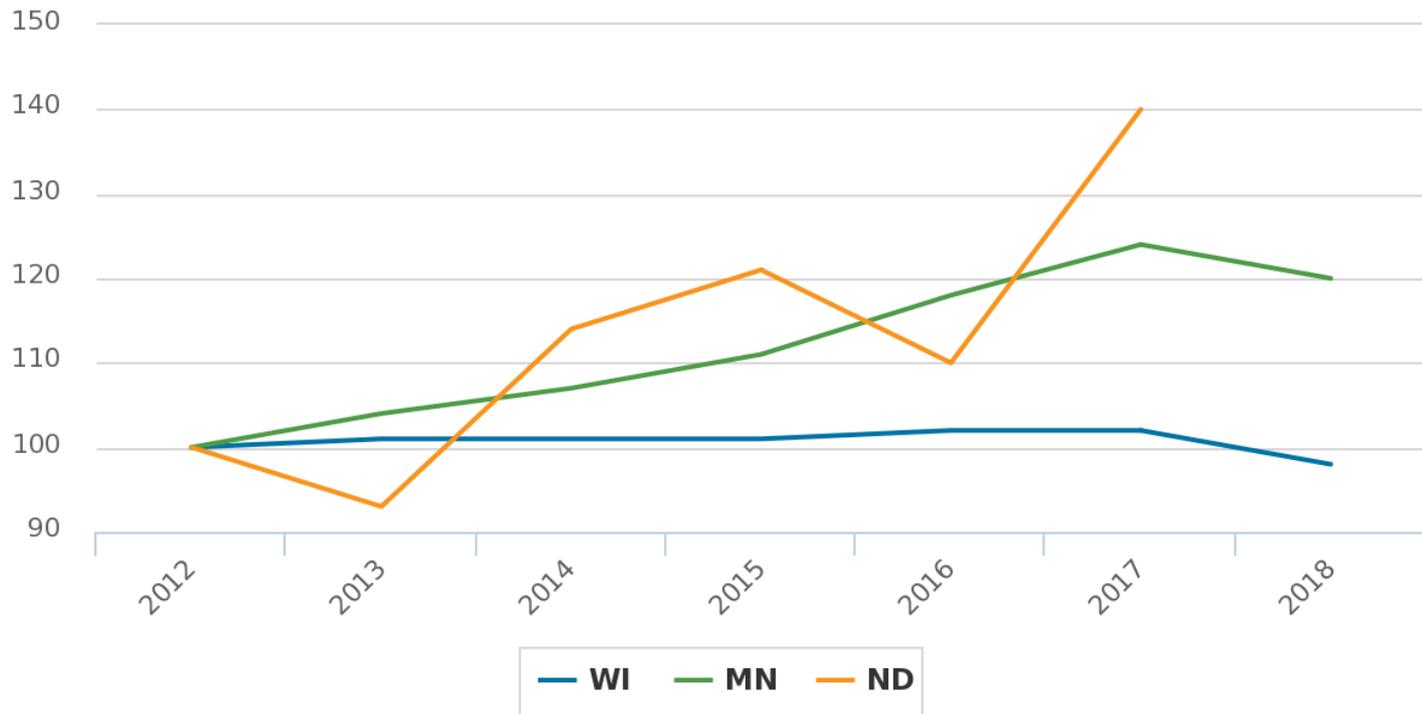
Earnings impacts despite score fade-out



Trends for centers differ by state

... as centers catch up

Capacity of child care centers by state (2012=100)



Sources: Minnesota Department of Human Services; Wisconsin Department of Health Services; North Dakota Childcare Resources and Referral

Where are families with most need for better access to ECE services?

- Family-centered view of the ECE market
- Low access to ECE services marked by:
 - High costs: high prices and long travel times
 - Low quantity of services relative to presence of young children
 - Low quality
- Proper diagnosis supports proper remedy.

Family Access Reports by community

Early Care & Education Access Report

Choose a county of interest from the drop-down menu below

Todd County

UNIVERSITY OF MINNESOTA
Driven to Discover®

What is access?

About 1,680 children under age 5 live in 1,250 families in Todd County. Statewide, about 349,270 such children live in 259,510 families.

A family has greater access to child care if:

- more slots nearer home and fewer children nearer those slots.
- lower prices at and travel times to those slots, or
- more of them are highly-rated.

Variation in access among county families

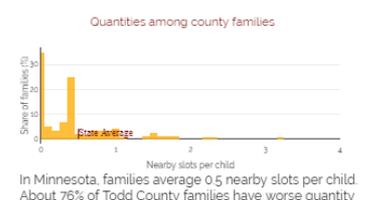
The graphs below show the distribution of access among families in Todd County. Taller bars in each plot indicate that a higher share of the Todd County families have that level of access. The heavy, vertical line shows the average access level across all Minnesota families with young children.

Quantity of Child Care

0.41 Nearby slots per child

78 Rank over 87 counties

Todd County families average 0.41 nearby slots per child, which ranks 78 among the state's 87 counties. This includes all the nearby slots from centers, licensed family child care, and public providers like Head Start and school-based prekindergarten.

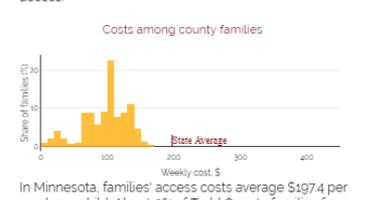


Cost of Child Care

\$97 per week

16 Rank over 87 counties

Todd County families' total cost of accessing full-time care averages \$96.5 per week, ranking 16 among the state's 87 counties. The lowest-cost county is ranked 1st. This cost combines both nearby providers' weekly prices (\$0 for public providers) plus travel costs based on drive times.

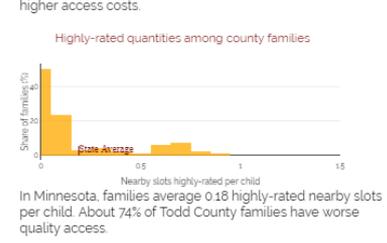


Quality of Child Care

0.16 Highly-rated nearby slots per child

40 Rank over 87 counties

Todd County families average 0.16 highly-rated nearby slots per child. The ranks 40 among the state's 87 counties. An average of 31% of nearby slots are highly-rated for Hennepin County families. Highly-rated slots are those in centers or licensed family care rated 3- or 4-stars in Parent Aware and in public providers (Head Start and school-based).



Overall Access Index

43

Rank over 87 counties

Todd County ranks 43 among the state's 87 counties in overall family access to child care. This overall access index is an equally-weighted average of each county's three dimensions of access: quantity, cost and quality.

Exploring Access in More Depth

Care Types*

In Todd County 4% of slots near families are in child care centers, compared to an average of 47% across the state. The other 96% of slots near families in this county are licensed family child care (67%) and public providers (29%), compared to state averages of 41% for family child care and 12% for public slots.

Quality premium

This expresses how much more it would cost a family in money and travel time to access highly-rated care (3- or 4-star in Parent Aware, non-public) compared to care that is not highly-rated. Nearby highly-rated care costs an average of 13% more for Todd County families versus 35% more among all families statewide. The quality premium does not take into account either public providers (Head Start or school-based preschool) or public funding of care by non-public providers.

*Note: Data on public settings are subject to measurement error in terms of location and capacity.

