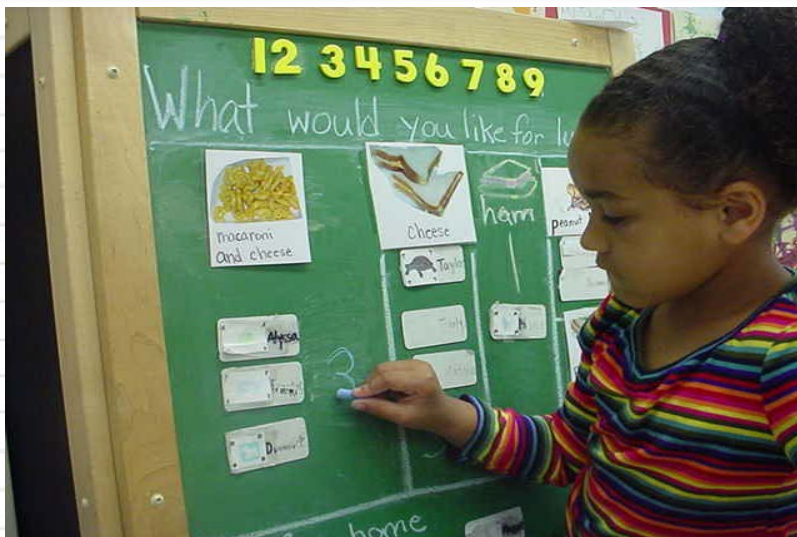




What Do We Know About the Actual and Potential Effects of Large-scale Public Preschool Programs? SRCED Biennial Meeting

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Steve Barnett, PhD
nieer.org

RUTGERS
Graduate School of Education



Impacts of Quality Early Education

Increased Educational Success and Adult Productivity

- Achievement test scores
- Special education and grade repetition
- High school graduation
- Behavior problems, delinquency, and crime
- Employment, earnings, and welfare dependency
- Smoking, drug use, depression

Decreased Costs to Government

- Schooling costs
- Social services costs
- Crime costs
- Health care costs (teen pregnancy and smoking)



Meta-Analysis of Research Since 1960

IQ, Achievement and Language

.45 sd initial effect birth to 5

.16 sd at ages 5-10

.23 sd at age >10

Higher quality studies es .27 sd larger

Social-Emotional & Behavior

.16 sd, no sig. decline over time

Schooling (grade repetition, spec. ed., grad.)

.15 sd, no sig. decline over time



Effects of Model and Large Scale Public Programs on School Outcomes

| Outcome | Model Programs | | Head Start & Public School | |
|-------------------|----------------|----|----------------------------|----|
| | Mean | N | Mean | N |
| Special Education | 19.9% | 11 | 4.7% | 9 |
| Grade Repetition | 14.9% | 14 | 8.4% | 10 |



Are large benefits to be expected only for targeted programs?

Which problems only affect the disadvantaged?

Poor achievement?

Grade failure and repetition?

Drop out?

Crime and delinquency?

Mental health and health problems?

How well does targeting actually work?

Income is a moving target

Disadvantage is not just income-related

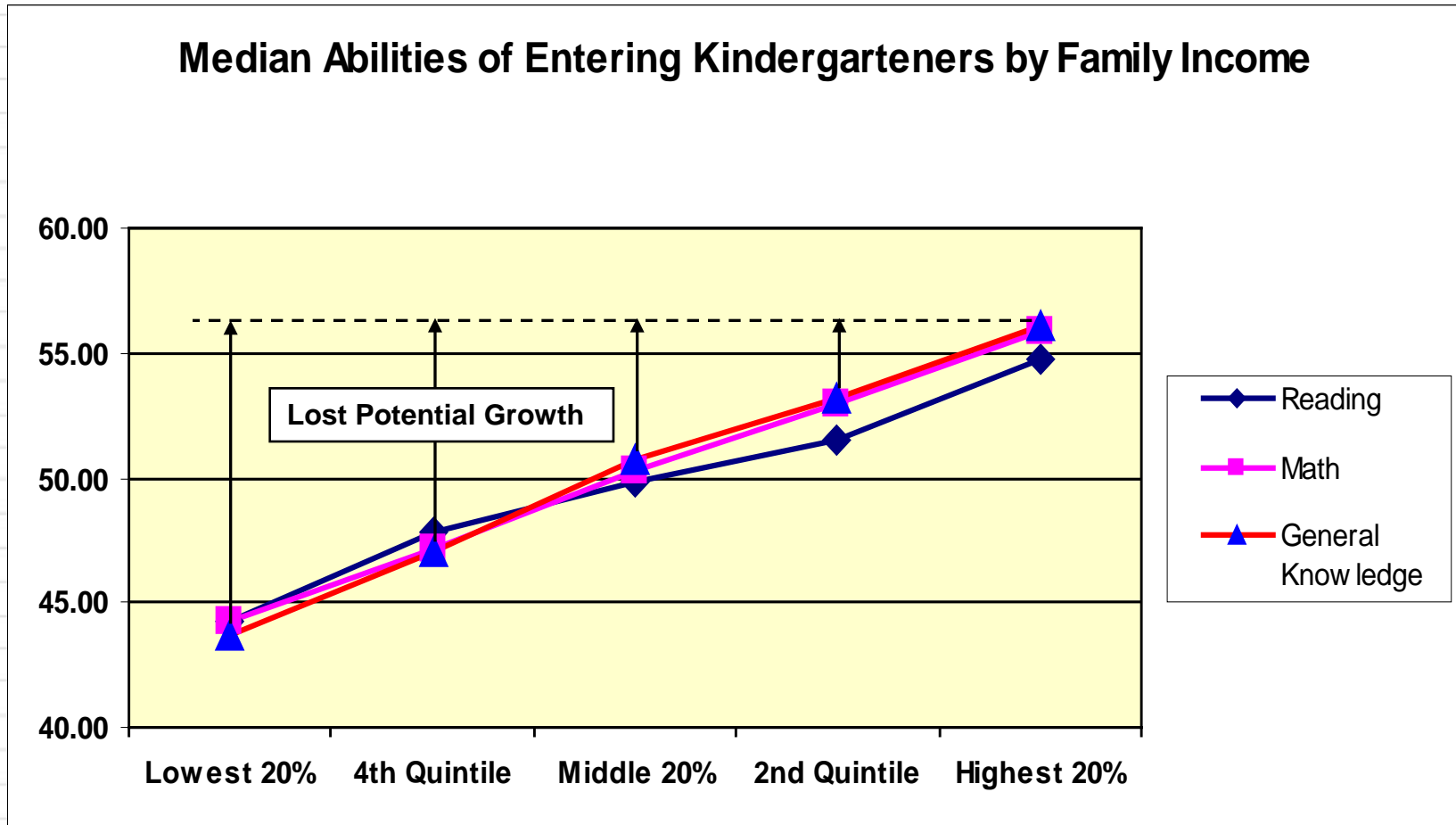
Eligibility is costly to determine

Targeting is stigmatizing

Are there important peer effects?

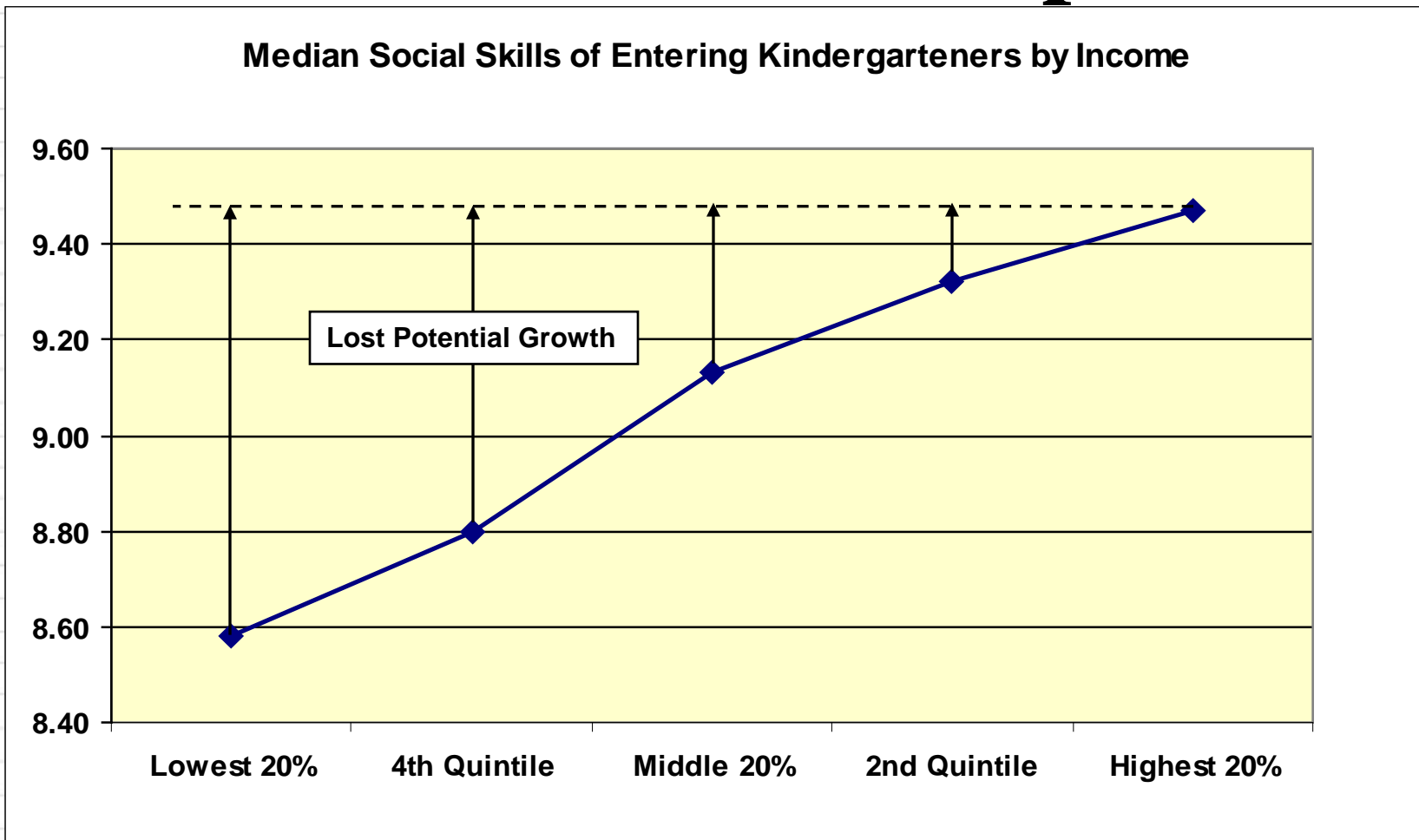


Cognitive Development Gap





Social Skills Gap





School Failure and the Middle Class

**Middle class children have fairly high rates of failure.
Reducing these problems could generate large benefits.**

| <u>Income</u> | <u>Retention (2004)</u> | <u>Dropout (2005)</u> |
|----------------------|--------------------------------|------------------------------|
| Lowest 20% | 12% | 18% |
| 20-80% | 8% | 9% |
| Highest 20% | 4% | 2% |



Chicago Child Parent Centers

- High Standards Similar to better State Pre-K
- Immediate impacts at K:
 - General Cog. ES = .63 1 yr, .87 2 yr
 - Math ES = .33 1 yr, .56 2 yr
 - Reading Rd. ES = .20 1 yr, .48 2 yr
- Effects in 2nd grade
 - Math ES = .30 1 yr, .40 2 yr
 - Reading ES = .22 1 yr, .46 2 yr
 - Grade repetition = -5.8% 1 yr, -10.7% 2 yr

Source: Reynolds (1995).



Large Scale Public Programs

- **Subsidized Child Care**
 - \$6.3 billion + \$1 billion
 - \$1.3 billion CCFP
 - \$2.5 billion federal tax credits
- **Head Start**
 - \$6.4 billion + \$1 billion
- **Early Head Start**
 - \$0.7 billion + \$1.1 billion
- **State and Local Pre-K**
 - \$5 billion



Large Scale Public Programs

- Child Care and other private pre-K
 - 2.7million in private centers 3 and 4
- Head Start
 - 752,000 3 and 4s in 50 states plus DC
- State and Local Pre-K
 - 1 million plus mostly 4's



Child Care

- Low standards and quality is often low
- Children experience variable quality over time
- Subsidies target lower income children
- Weak positive effects of centers on cognition
- Weak negative effects on aggression?
- Positive effects on maternal work and earnings
- Subsidies may negatively effect cognition?



Oklahoma's Pre-K for All

- 3,000 children in Tulsa public schools
- Rigorous RD design
- Gains for all SES & ethnic groups
- Literacy and Math gains
 - Smaller than Perry and Abecedarian
 - Similar to CPC
- Larger gains for minority and poor children
- Larger gains in pre-K for all than in Head Start with equal teacher qualifications



Achievement Gains from Pre-K

| | <u>Perry</u> | <u>Tulsa</u> | <u>8 States</u> | <u>Hd St (adj)</u> |
|-----------------|--------------|--------------|-----------------|--------------------|
| Cog/Lang | .75 | NA | .23 | .05 (.08)* |
| Math | NA | .36 | .31 | .10 (.15)* |
| Print | NA | .99 | .79 | .22 (.26) |

Effects as percentage of achievement gap (1 standard deviation). Head Start effects are intent-to-treat with estimates in parentheses adjusted for crossovers and participation in other programs. * Indicates upper-bound estimates of cross-over effects from Ludwig and Phillips (2007).



New Jersey Abbott Pre-K (APPLES)

- Quality raised dramatically for private providers
- Immediate impacts of one year at 4 on:
 - Language ES = .28-.36
 - Math ES = .23-.36
 - Print ES = .50-.56
- Two years have twice the effect of 1 year
- Effects sustained through 2nd grade
 - Language ES = .22 1 yr, .40 2 yrs
 - Math ES = .24 1 yr, .44 2 yrs,
 - Reading Comprehension improved
 - Grade repetition = 10% no pre-K, 7.5% 1 yr, 5% 2 yrs



Pre-K Gains by Income

| | <u>NJ-Hi</u> | <u>NJ-Lo</u> | <u>OK-Hi</u> | <u>OK-Lo</u> |
|-----------------|--------------|--------------|--------------|--------------|
| Cog/Lang | 5.6 | 5.5 | 6.2 | 8.7 |
| Math | .6 | .8 | 1.6 | 2.0 |
| Print | 12.8 | 18.8 | 18.0 | 25.0 |



Effects of Pre-K Teacher Qualifications

| | <u>TPS</u> | <u>THS</u> | <u>NHS (adj.)</u> |
|-----------------|------------|------------|-------------------|
| Math | .36 | .37 | .10 (.15)* |
| Print | .99 | .51 | .22 (.26) |
| Spelling | .74 | .33 | .16 (.18) |

Effects as percentage of achievement gap (1 standard deviation). Head Start effects are intent-to-treat with estimates in parentheses adjusted for crossovers and participation in other programs. * Indicates upper-bound estimate of cross-over effects from Ludwig and Phillips (2007).



International Studies of Pre-K for All

- Gains in learning and development for all
- Positive peer effects for low SES children
- Teachers and quality matter
- International comparisons find effects of Pre-K on test scores in math & science (PISA)
- Universal pre-K reduces with-in country inequality in test scores



New Research

- Focus on increasing educational effectiveness
- Include multiple domains not one at a time
- Employ experimental designs
- Test comprehensive large-scale reforms
- Key ingredients and their levels—quantity & quality
- Recognize the interdependence of ingredients
- Study systems



Conclusions

- Child care subsidies have minimal effects on kids
- Head Start has very modest positive effects
- Best public pre-K produces larger benefits—we can do better
- All children gain from high quality
- Raise standards and increase public funding
- Large scale experimental R&D for Head Start, EHS, Pre-K