Should the United States Have Pre-K for All?
Duke University, Durham NC
October 22, 2013

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Why Offer *Universal* High-Quality Public Pre-K?

1. High-quality pre-K can produce large benefits to society
2. Positive benefits can be produced on a large scale--depends crucially on implementation
3. Targeting is ineffective and inefficient
4. Need not limited to those in or near poverty
5. UPK can be effective and benefits poor most
6. Pre-K for all has a larger net benefit
Potential Gains from Pre-K Investments

*Educational Success and Economic 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)
Preschool programs 0-5 in the US: Impacts in 123 studies since 1960

Effects (1sd) = percent of ach. gap

- All Designs
- HQ Designs
- HQ Programs

Age at Follow-Up

- Treatment End
- Ages 5-10
- Age >10
What did we learn from meta-analysis besides average effect sizes?

1. Intentional teaching matters
2. Individualization & small groups increase gains
3. Comprehensive services decrease effects
   – Why?
4. No other robust relationships except time and quality
Perry Preschool Education Effects

- **Age 5 IQ > 90**: 28% Program group, 67% No-program group
- **Age 14 Homework**: 15% Program group, 40% No-program group
- **Age 14 Achievement at 10th %ile +**: 15% Program group, 49% No-program group
- **No Special Education (Cog.)**: 49% Program group, 66% No-program group
- **Graduated HS on Time**: 45% Program group, 66% No-program group
- **HS Graduate**: 60% Program group, 77% No-program group

Bar chart comparing program group and no-program group on various education outcomes.
Perry Preschool Crime Effects

<table>
<thead>
<tr>
<th>Category</th>
<th>Program</th>
<th>No Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discipline Problems ages 6-12</td>
<td>14%</td>
<td>27%</td>
</tr>
<tr>
<td>Arrested &gt;5X by 27</td>
<td>7%</td>
<td>29%</td>
</tr>
<tr>
<td>Arrested &gt;5X by 40</td>
<td></td>
<td>36%</td>
</tr>
<tr>
<td>Violent Crime by 40</td>
<td></td>
<td>48%</td>
</tr>
<tr>
<td>Drug Crime by 40</td>
<td>14%</td>
<td>34%</td>
</tr>
</tbody>
</table>
Perry Preschool Economic Effects

- Earned >$20K at 27: 7% No Program, 29% Program
- Earned >$20K at 40: 7% No Program, 60% Program
- Employed at 40: 13% No Program, 62% Program
- Own Home at 27: 13% No Program, 36% Program
- Own Car at 40: 7% No Program, 82% Program
- Had savings Account at 40: 7% No Program, 76% Program
Chicago CPC: Academic and Social Benefits at School Exit

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Program group</th>
<th>No-program group</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS Graduation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>39%</td>
</tr>
<tr>
<td>Special Education</td>
<td>14%</td>
<td>25%</td>
</tr>
<tr>
<td>Grade Repeater</td>
<td>23%</td>
<td>38%</td>
</tr>
<tr>
<td>Juvenile Arrest</td>
<td>17%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Economic Returns to Pre-K for Disadvantaged Children

(In 2006 dollars, 3% discount rate)

<table>
<thead>
<tr>
<th></th>
<th>Cost</th>
<th>Benefits</th>
<th>B/C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perry Pre-K</td>
<td>$17,599</td>
<td>$284,086</td>
<td>16</td>
</tr>
<tr>
<td>Abecedarian</td>
<td>$70,697</td>
<td>$176,284</td>
<td>2.5</td>
</tr>
<tr>
<td>Chicago</td>
<td>$ 8,224</td>
<td>$ 83,511</td>
<td>10</td>
</tr>
</tbody>
</table>

But don’t the effects fade-out in large scale public programs?

- Sometimes yes
  - Head Start and other “comprehensive programs”
  - Other “weak” public programs
  - Weak initial results
  - Few, if any, detectable lasting gains
  - These are intent-to-treat (under)estimates
  - They do not follow the models found to produce large gains
Perry Preschool Cognitive Effects over Time

- **Age 5**: PPVT
- **Age 6**: Read
- **Age 7**: Math
- **Age 8**: PPVT
- **Age 9**: Read
- **Age 10**: Math
- **Age 14**: PPVT

*Note: The graph shows the cognitive effects (PPVT, Read, Math) at different ages (Age 5 to Age 14).*
Good Preschool is Rare (ECLS-B)
Program Effectiveness Varies Greatly
(effect of 1 year at age 4)

<table>
<thead>
<tr>
<th></th>
<th>CPC</th>
<th>Tulsa</th>
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<th>Head St</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td>NA</td>
<td>NA</td>
<td>.26</td>
<td>.13</td>
</tr>
<tr>
<td>Math</td>
<td>.33</td>
<td>.36</td>
<td>.32</td>
<td>.18</td>
</tr>
<tr>
<td>Literacy</td>
<td>NA</td>
<td>.99</td>
<td>.80</td>
<td>.34</td>
</tr>
</tbody>
</table>

Effects in standard deviations. Head Start adjusted for crossovers in randomized trial.
NJ’s Counterexample

• Teacher with BA & Cert. + asst. in each class;
• Full-day (6 hour educational day), 180-day program, plus extended day/full year;
• Access to all 3 and 4 yr. olds in 31 school systems
• Maximum class size of 15 students;
• Evidence-based curricula;
• Early learning standards and program guidelines;
• Support for potential learning difficulties;
• Professional development for key staff;
• Part of systemic reform P-12
NJ Raised Quality in Public and Private

ECERS-R Score (1=minimal, 3=poor 5= good 7=excellent)

- 00 Total (N = 232)
- 08 Total (N = 407)
Abbott Pre-K Effects on NJASK by Years of Participation

- LAL 4th
  - 1 year Abbott pre-k: .12
  - 2 year Abbott pre-k: .26
- LAL 5th
  - 1 year Abbott pre-k: .18
  - 2 year Abbott pre-k: .22
- Math 4th
  - 1 year Abbott pre-k: .17
  - 2 year Abbott pre-k: .37
- Math 5th
  - 1 year Abbott pre-k: .14
  - 2 year Abbott pre-k: .29
- Science 4th
  - 1 year Abbott pre-k: .17
  - 2 year Abbott pre-k: .37
Abbott Pre-K Effects on Retention and Special Education

Retention:
- Abbott pre-K: 12%
- No Abbott pre-K: 19%

Special Education:
- Abbott pre-K: 12%
- No Abbott pre-K: 17%
Targeting: 50 years of evidence

• The US still does not serve most children in poverty
  – Capacity is too limited
  – Some parents do not want to send their children to a program that is just for the poor

• Major programs provided to children in poverty have smaller effects than “expected”

• Many children in targeted programs are not poor
  – Poverty is a moving target
  – There is great incentive to “cheat” for both families and programs
Cognitive Development Gap

Median Abilities of Entering Kindergarteners by Family Income

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Social Skills Gap

Median Social Skills of Entering Kindergarteners by Income

Lost Potential Growth

Effects of UPK in the US

- Rhode Island Randomized Trial
  - Positive gains for all, larger gains for low income children
- Oklahoma (multiple studies)
  - Gains for all, larger gains for the lowest income children
  - Grade 3 gains on attention and academic achievement
- Georgia, West Virginia, New Jersey all have studies with positive effects
- Long-term positive effects in GA and NJ
- BCA in GA, earnings gains alone may exceed cost
Effects of UPK Globally

OECD test scores higher and more equal as access approaches 100%

France: Ecole Maternelle increased income

Norway: universal child care increased earnings and employment

Arg. Uru. and UK: universal pre-K raised long-term achievement

Denmark, Quebec: universal child care care null or negative effects on children--quality matters
CBA of Targeting vs. Universal

Targeted: Lower cost, fewer benefits
- Screening and identification is costly and imperfect
- Still the population served has greater need on avg.
- Many who need the program are not served

Pre-K for all: More benefits but higher cost
- Reaches all disadvantaged children
- Larger gains for disadvantaged children
- Benefits children from middle income families too
- Smaller average benefit
- Sliding fee scale can reduce public cost

# Simulated Economic Returns

<table>
<thead>
<tr>
<th></th>
<th>Cost</th>
<th>Benefits</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Targeted</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% correct</td>
<td>$12.5</td>
<td>$79.9</td>
<td>$67.4</td>
</tr>
<tr>
<td>80% correct</td>
<td>$12.5</td>
<td>$96.0</td>
<td>$83.5</td>
</tr>
<tr>
<td><strong>Universal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80% enroll</td>
<td>$62.4</td>
<td>$213.2</td>
<td>$150.8</td>
</tr>
</tbody>
</table>

Conclusions

- 50 years of means-testing has largely failed
  - Inadequate coverage, quality, and results
  - This is not necessary--programs can succeed at scale
- UPK has achieved full coverage and higher quality
- UPK permits positive peer effects & systemic change
- Benefits are not limited to the disadvantaged
- UPK benefits all children while reducing inequality
- UPK plausibly yields a larger net economic benefit with an adequate (if lower) rate of return
References