Principles and Standards for Benefit-Cost Analysis of Early Childhood Interventions

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Issues

1. Distributional consequences
2. Consumption value
3. Discount rate
4. Option value
“Finally, the alphabet is paying off.”
Effects of Preschool relative to Parental Care on Kindergarten Reading and Math Scores

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<tbody>
<tr>
<td>K Reading (std)</td>
<td>0.217</td>
<td>0.163</td>
<td>0.148</td>
<td>1.41</td>
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<tr>
<td></td>
<td>(0.040)***</td>
<td>(0.042)***</td>
<td>(0.041)***</td>
<td>(0.611)***</td>
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<tr>
<td>K Math (std)</td>
<td>0.191</td>
<td>0.094</td>
<td>0.085</td>
<td>0.971</td>
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<tr>
<td></td>
<td>(0.041)***</td>
<td>(0.034)***</td>
<td>(0.034)**</td>
<td>(0.442)**</td>
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<td>R-squared</td>
<td>0.34</td>
<td>0.58</td>
<td>0.59</td>
<td>0.59</td>
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<td>N</td>
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<td>5900</td>
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Shadow price of IQ?

- General method: devise scale; estimate economic value of each notch of scale
- Economic value comes from PV of additional earnings and other social benefits associated with ‘IQ’ (but not passive use)
- Comparability of educational interventions
Change in lead exposure (age 0-6)

PV per IQ point $5,000

PV to avert IQ < 70 $70,000

2010 dollars

Benefits and Costs of the Clean Air Act, 1970-1990
(EPA Report to Congress, 1997)
Methodological challenges

Achievement metrics would have to be:

1. Complete
2. Stable over person and grades
3. Yield monotonic transformation into economic outcomes
   • No threshold effects
   • No labor market sorting based on comparative advantage
   • No GED-type persons
Instability of metrics

2a. Tests show significant within-child variation:
   12-month old Bayley score is correlated 0.2 with Stanford-Binet score at age 3-5

2b. Tests show significant variation in effect sizes across grades:
   Over elementary school year, effect size gain >1sd
   Over high school year, effect size gain <0.3sd
Conclusions

- A bit like pizza? High PV of benefits from effective ECIs
- Improved method pushes PV of benefits up
- Weak part is collection of data on costs and investigation bias
- Higher standard than other projects
- Shadow price of IQ or school readiness would be useful, but challenging