

Approaches to Projecting (or Guesstimating) Long- Term Outcomes

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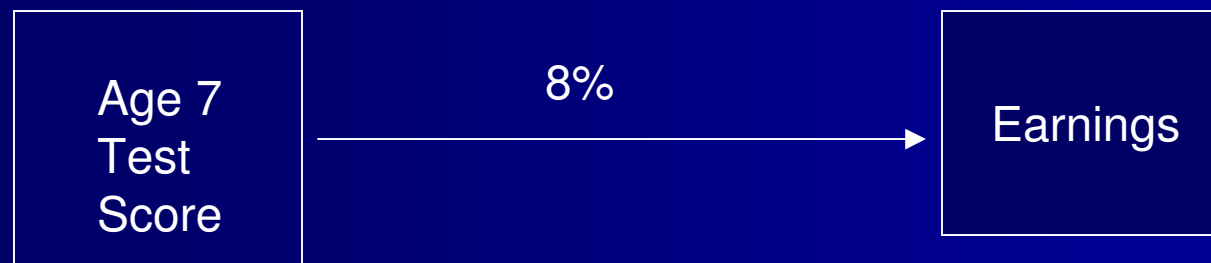
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Early childhood programs present unique challenges

- n Long-run outcomes are the result of complicated “production” functions with sensitive periods that differ by domain
- n Most early childhood programs target more than one domain, and there is good reason to expect spillover effects from one domain to another

Is a back of the envelope approach better than nothing?

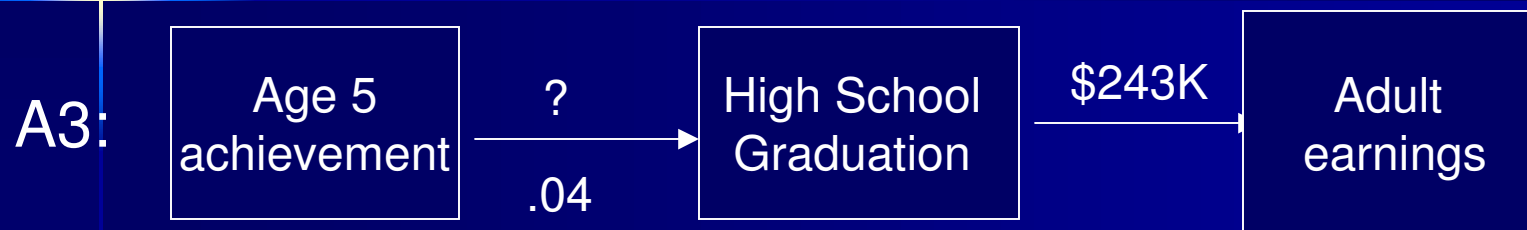
- n Approach 1: Krueger's class size thought experiment



- n Some limitations, but not so bad for a rough estimate
- n This approach can be adapted to other predictors and outcomes

What about early childhood?

- n The long-run effects of early childhood outcomes probably are different than at later ages (although this will depend on the domain of interest)
- n BUT data from representative studies that follow children from early childhood into adulthood with necessary assessments and information are limited
- n So, what is to be done?
 - Use a two stage method (Approach 2 & Approach 3)



Worry about...

- Appropriate samples and replicated findings
 - n Should data be nationally representative?
- Trying to approximate causal effects
 - n What should be controlled ?
- Value of outcome
 - n What population should be used to calculate estimated lifetime earnings (and decisions about wage growth and discounting)

Two-stage methods

ⁿ Strengths...

- Flexible enough to be adapted to other outcomes
- Transparent about mechanism of effects

ⁿ Limitations... (as applied here)

- Only as good as underlying studies
- Do not model all pathways by which early childhood affects later outcomes (i.e., ignore unmeasured pathways)
- Measurement issues matter
- Involve uncertainty at each step of the way

Approach 4: Leveraging experimental evaluations with long-run outcomes

- n Use Perry Preschool as a benchmark
- n Assume that effects are proportional
 - Perry's effect on PPVT was .91 SD
 - Perry's effect on lifetime earnings was ~ \$59,000 (in \$2006)
- n Strength is potential inclusion of all meaningful pathways
- n Limitations...
 - Proportionality has not been empirically established
 - Generalizability: Perry's mechanism of influence, and population may be unique

Duncan, G., Ludwig, J. and Magnuson, K. (in press). Reducing Poverty through Early Childhood Interventions. In P. Levine and D. Zimmerman (eds), *Targeting Investments in Children: Fighting Poverty When Resources Are Limited*.

Comparing approaches...

Program Impact in early years	A1 (Krueger)	A2 (2-step Ach)	A3 (2-step HS)	A4 (Prop. To Perry)
	PV Earnings in 2006 \$			
1 SD reading	\$40,330	\$20,160	\$9,720	\$64,835
.5 SD reading	\$20,160	\$10,080	\$4,862	\$32,417
.2 SD reading	\$8,070	\$4,030	\$1,945	\$12,967
	Fraction of PV of Lifetime Earnings			
1 SD reading	.08	.04	.02	.09
.5 SD reading	.04	.02	.01	.04
.2 SD reading	.02	.008	.004	.02

Notes: PV of lifetime earnings (\$508,104) is calculated for a sample that is 50% HS graduates & 50% HS dropouts; All cols. Present 2006 dollars with 3% discounted to age 5; cols. 1-3 assume 1% wage growth

Discussion

- n Guesstimating long-run effects is complicated
- n Each approach has strengths and limitations
- n Important to be clear about underlying assumptions
- n Ultimately, specifics of program and outcome being modeled should dictate which (if any) approach is preferred