The rate of return to the HighScope Perry Preschool Program

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This paper estimates the rate of return to the HighScope Perry Preschool Program, an early intervention program targeted toward disadvantaged African-American youth. Estimates of the rate of return to the Perry program are widely cited to support the claim of substantial economic benefits from preschool education programs. Previous studies of the rate of return to this program ignore the compromises that occurred in the randomization protocol. They do not report standard errors. The rates of return estimated in this paper account for these factors. We conduct an extensive analysis of sensitivity to alternative plausible assumptions. Estimated annual social rates of return generally fall between 7 and 10%, with most estimates substantially lower than those previously reported in the literature. However, returns are generally statistically significantly different from zero for both males and females and are above the historical return on equity. Estimated benefit-to-cost ratios support this conclusion.

Setup

The Generalized Roy Model

Potential Outcomes

$$Y_1 = \mu_1(X) + U_1$$

$$Y_0 = \mu_0(X) + U_0$$

Observed Outcome

$$Y = DY_1 + (1 - D)Y_0$$

Choice

$$D = \mathrm{I}[\mu_D(X, Z) - V > 0]$$

Treatment Status

D	self-selected
ξ	assigned
A	actual

Key Identifying Assumptions

$$(Y_1, Y_0) \perp\!\!\!\perp D$$
$$(Y_1, Y_0) \perp\!\!\!\perp \xi$$
$$(Y_1, Y_0) \perp\!\!\!\perp A$$

When do we have to worry about compliance?

$$
\begin{aligned}
&E(Y \mid A = 1) - E(Y \mid A = 0) \\
&\qquad = E(Y_1 \mid A = 1) - E(Y_0 \mid A = 0) \quad \text{(by full compliance)} \\
&\qquad = E(Y_1) - E(Y_0) \qquad\qquad\qquad\qquad \text{(by randomization)} \\
&\qquad = ATE = TT = TUT
\end{aligned}
$$

What if we can only deny program participation to individuals who are willing to participate?

$$
\begin{aligned}
&E(Y \mid D = 1, A = 1) - E(Y \mid D = 1, A = 0) \\
&\qquad = E(Y_1 \mid D = 1, A = 1) - E(Y_0 \mid D = 1, A = 0) \\
&\qquad = E(Y_1 \mid D = 1) - E(Y_0 \mid D = 1) \\
&\qquad = TT \neq ATE \neq TUT
\end{aligned}
$$

Issues

- Compliance
- Imperfect Randomization
- Ethical Concerns
- Feasibility
- Expenses
- External Validity

Challenges to Scaling Experiments

- market equilibrium effects
- spillovers
- political reactions
- context dependence
- randomization or site-selection bias
- piloting bias

See Banerjee et al. (2017) for a discussion of these challenges and their attempts to address them in their work.

Paper

- Heckman, J. J., Moon, S. H., Pinto, R. R., and Yavitz, A. (2008). The rate of return to the perry preschool program. *Journal of Public Economics*, forthcomin

Part of a whole sequence ...

- Heckman, J. J., Moon, S. H., Pinto, R. R., and Yavitz, A. (2008). The rate of return to the perry preschool program. *Journal of Public Economics*, forthcomin

Appendix

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