CAN SCHOOLS LEVEL THE INTERGENERATIONAL PLAYING FIELD?
Lessons from Equal Educational Opportunity Policies

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First-Generation Suite of Equal Opportunity Policies

- School Desegregation
- School Finance Reform
- Head Start
Data: Linking Schools to Adult Outcomes

PSID - those born 1955-85 followed up to 2011
- Educational attainment and adulthood outcomes (1980-2011);
- Data linked to census block in childhood

Resulting Sample:
- 151,756 person-year adult observations (ages 20-45)
  - 15,353 individuals (9,035 low-income; 6,318 not-low-income)
  - (Low-income: income/needs<2 during childhood)
- From 1,409 school districts in 1,031 childhood counties, 50 states
- Matched to childhood school districts (pre-reform)

Adult outcomes for those expected to be exposed to Court Mandated Reforms.
Unconditional Mobility Estimates
• Upward Directional Rank Mobility (UP)

\[ UP_{\tau, s} = \Pr(Y_1 - Y_0 > \tau \mid Y_0 \leq s) \]

• To be interesting, s must be <1 (though for group differences s can be 1)
• For \( \tau = 0 \), this is simple: are you higher in distribution than your parents?
• Can use intervals rather than cumulative samples
Upward Mobility Estimates by Race Using Intervals of Parental Income:

Tau = 0.2
Birth Cohort Variation in Childhood Exposure to Court-Ordered School Desegregation

The Effect of Court-Ordered Desegregation on Intergenerational Mobility, by Race

Change in \( \text{Prob(Upward Mobility)} \) at \( \text{Tau=0} \)

![Graph showing the effect of court-ordered desegregation on upward mobility for Whites and Blacks over years of desegregation exposure.](image-url)
4 Types Funding Formulae

• **Foundation plans:**
  • Guarantees a base level of school spending.

• **Equalization plans:**
  • Tax wealthier district and redistribute funds to low wealth districts.

• **Reward for Effort plans:**
  • Match locally raised funds for education in (typically in low income districts).

• **Spending Limits:**
  • Prohibit per-pupil spending levels above some predetermined amount.
VISUAL PRESENTATION OF FIRST STAGE:

Plot of coefficients on interaction between $SPEND_d$ and “Yr relative to Court Mandated Reform” indicators (times 0.05, 0.1, and 0.2 to depict a 5, 10, and 20 percent predicted change)

Actual Change in Per Pupil Spending by Predicted Reform Induced Change in Spending (years 3 through 8)
Testing for Effects of Reform Induced Spending Changes on Outcomes

1. TIMING
   Do post reform cohorts have better outcomes than pre-reform cohorts?

2. INTENSITY
   Are improvements (across cohorts) larger in districts that experienced the largest increases in per pupil spending?

3. MECHANISMS & FALSIFICATION
   Are benefits concentrated for “school age” yrs of exposure?
Hypothesized Patterns in The Data

- **No Exposure**: Older than school-going age when reform starts
- **Partially Exposed**: Of school-going age when reform starts
- **Full Exposure**: Reform started before expected school entry

Adult Outcome

Year age 17 relative to Year of Initial Reform

- With continuous spending increases
  - Large spending increase
  - Small spending increase
Reduced Form Effect on Student Teacher Ratio

Effect of Court-Ordered School Finance Reform on Student-Teacher Ratios

10% Predicted Spending Increase +/- 90% CI

Year Aged 17 - Year of Initial Court Order

Change in Student-to-Teacher Ratio, ages 5-17
Yrs of Education by Childhood Income

Children from Low-Income Households

Children Not from Low-Income Households
Adult Poverty by Childhood Income

Change in Prob(Poverty), ages 20-45

Children From Low-Income Households

Children Not From Low-Income Households

10% Predicted Spending Increase +/- 1se

Change in Prob(Poverty), ages 20-45

Year Aged 17 - Year of Initial Court Order
Discussion

• Exogenous spending increases are associated with sizable improvements in long-run educational attainment, earnings, and intergenerational mobility.

  • Education effects of a 10%↑ during all 12 yrs =
    • effect of attending a small school (Barrow et al 2013; Schwartz et al 2013) OR
    • effect of attending a quality pre-K program (Deming 2009; Carneiro and Heckman 2003)

  • a 10%↑ in spending yields ↑ wages by 7.25%.
    • If all the effect were through years of education it would imply a Mincerian return of about 22 percent. The results are large, but plausible.

  • A 10%↑ in spending ↓ annual incidence of adult poverty by ~6.8 percentage points for low income children.

• Exogenous spending effects are associated with improved school inputs.
  • Endogenous spending is not associated with improved inputs, which might account for differing results across studies.
• MONEY MATTERS - increasing spending improves outcomes & reduces intergenerational transmission of poverty

• Exogenous school spending has benefit-cost ratio of about 2 and an internal rate of return of about 8.9%.

• Spending increases have large effects on low-income children.
  • Family background certainly is important, but improved school quality can help ameliorate the performance of those from disadvantaged backgrounds.

• HOW increased $$$ spent determines extent of better outcomes