

# Beyond the Head Start Impact Study: Context From Other Studies

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# Conflicting assessments of Head Start's value

- Cato Institute: *It's time to stop Head Start*
- Doug Besharov: *Head Start's broken promise*
  - “small gains will not do much to close the achievement gap between poor children (particularly minority children) and the general population ... we should expect more”
- National Head Start Association
  - “Head Start works because children experience long-term educational, social, and economic benefits”

# The Big Questions

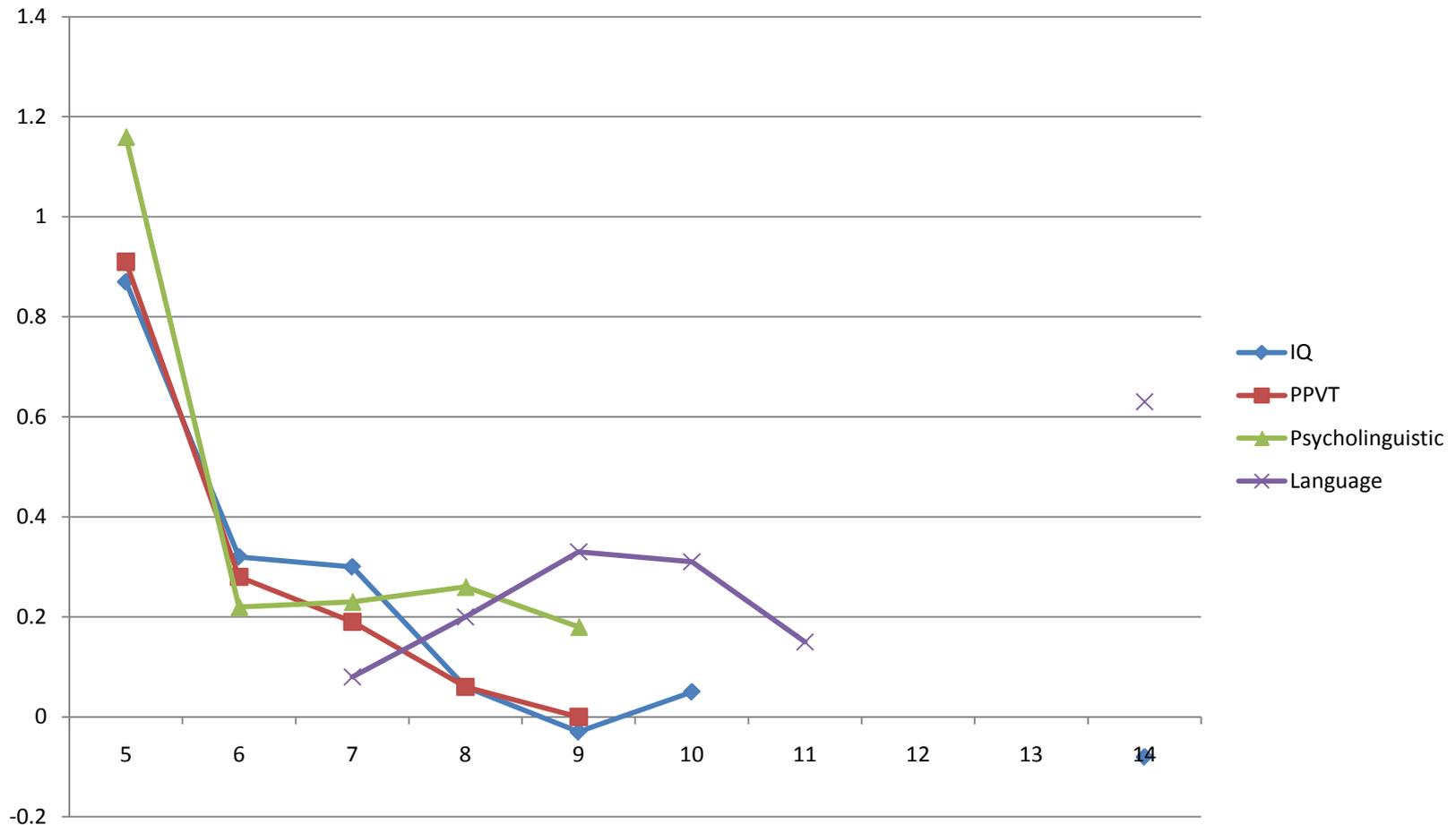
- What does NHSIS together with larger Head Start literature suggest about the program?
  - Do we believe Head Start can generate long-term benefits for current cohorts of low-income children?
  - Can we learn anything about what we can do to improve life outcomes of Head Start participants?

# What do we know about Head Start impacts?

- 5 types of evidence:
- Small, intensive programs (aren't Head Start)
- Observational studies
- “Family fixed effects” (sibling comparisons)
- County-poverty regression discontinuity
- Head Start Impact Study
  - *Special bonus material:* Tennessee STAR elementary school class-size reduction experiment

# Perry Preschool

(2x cost per child of Head Start, low-IQ African-American sample, 1960s)



# Other (non-Head Start) early childhood interventions

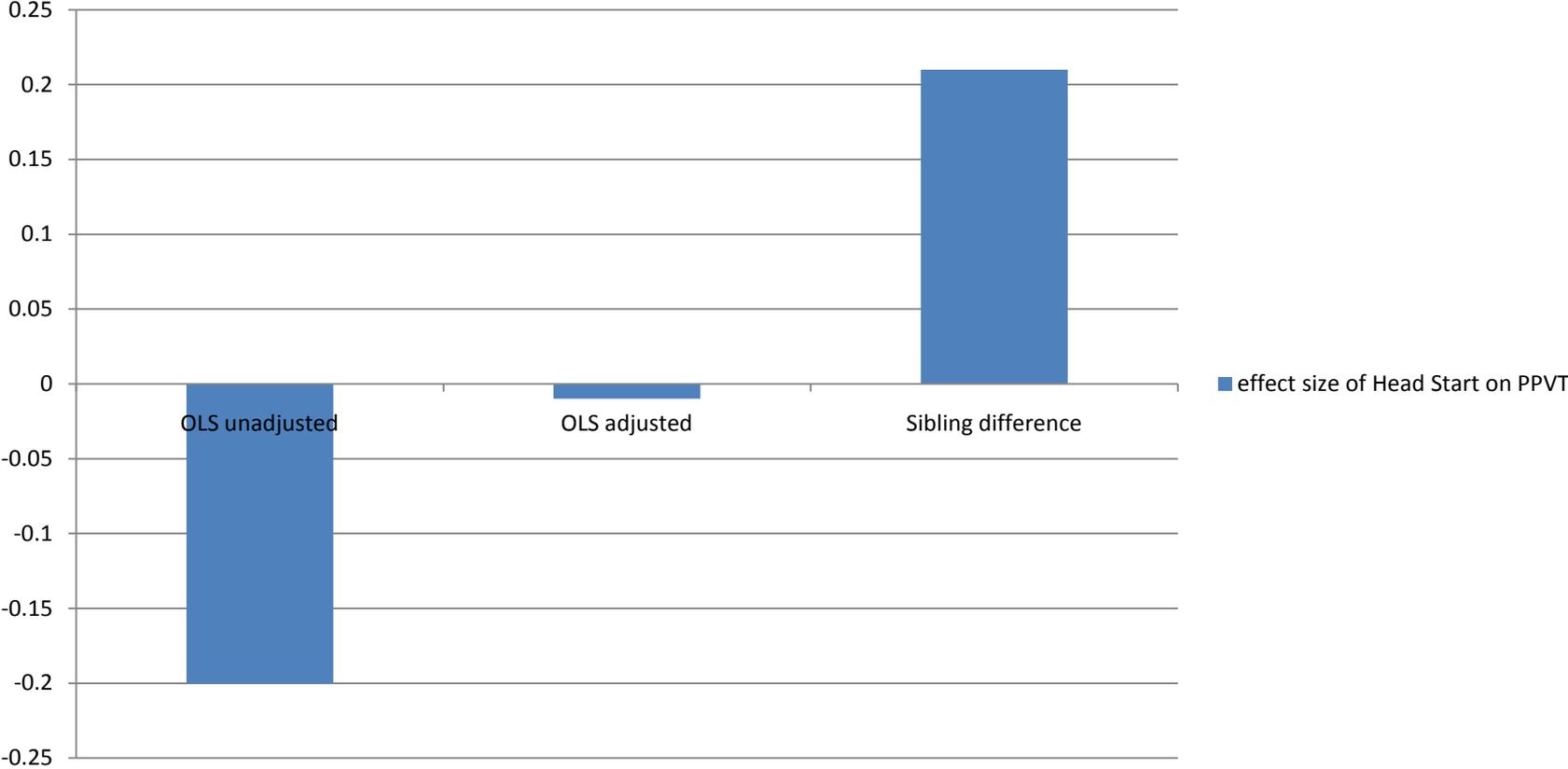
- Leak et al (2010) Meta-analysis
  - On average, initial test score impacts around .28 standard deviations
  - Fade out by 1 year after
  - No long-run impacts to compare

# Quasi-experimental studies: Head Start short-term test score impacts, previous cohorts

- Children of the NLSY79 (born late 1970s & 1980s)
  - Currie & Thomas (1995 American Economic Review), Garces et al. (2002 AER), Deming (2009 American Economic Journal)
- Sibling-difference design eliminates selection bias from unobserved variables that influence development & shared within families
  - Still susceptible to bias from unmeasured family attributes that change, or sibling attributes
  - Will understate effects if spillovers across children
  - Any errors in self-reporting Head Start participation will also lead them to understate effects of the program

# Families that are more disadvantaged w/ respect to unmeasured attributes more likely to enroll in Head Start

effect size of Head Start on PPVT from Currie & Thomas 1995 AER



# Ludwig & Miller

*(2007, Quarterly Journal of Economics)*

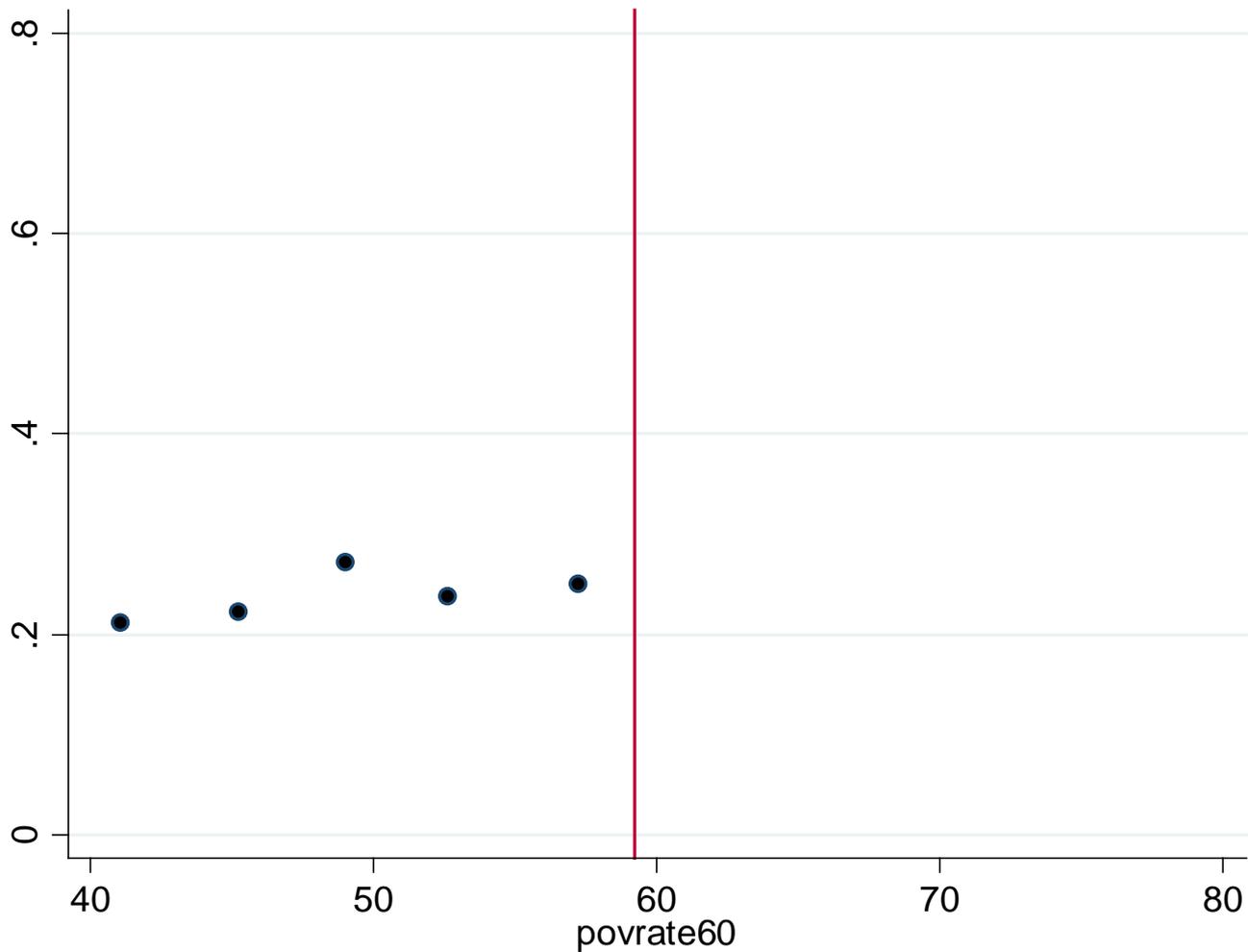
- Head Start, Fed grants to local providers (no state-level middlepersons)
- LBJ wanted 500,000 Head Start participants in first summer (1965)
- OEO launched nationwide publicity blitz to local service providers
  
- But OEO concern about whether poorest counties would / could develop HS proposals

# A natural experiment

- OEO recruited team of Presidential Management Intern (PMI) volunteers
- Sent them out to 300 poorest counties in US
  - Spring 1965
  - Identify potential HS program providers
  - Work with them to develop proposals
  - Fly proposals back to DC, defend to OEO reviewers
- HS histories report that 240 of 300 poorest counties received HS funding
  - (vs. 43% of all US counties)

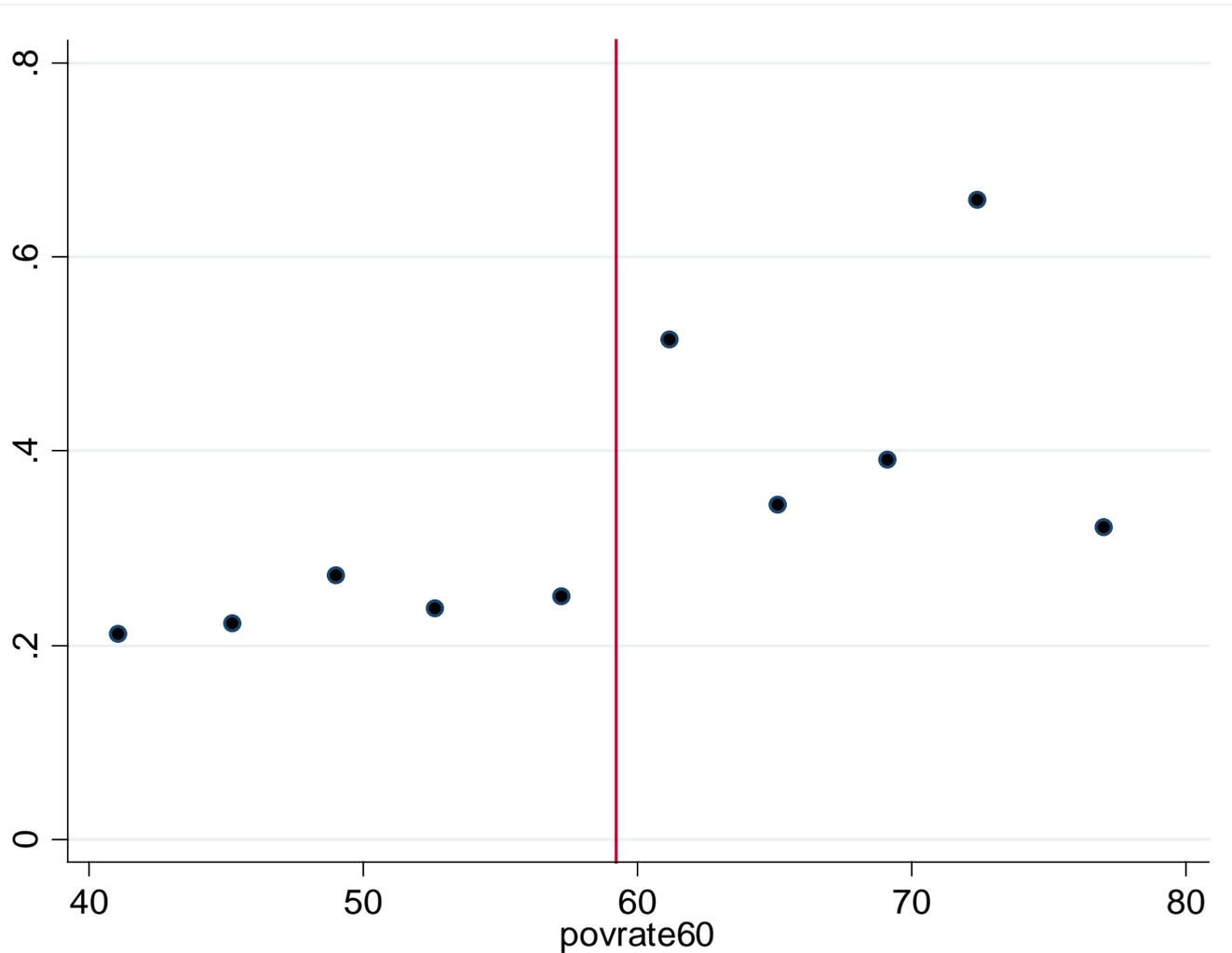
# Head Start participation rates 1977-78 (NELS)

y-axis = share kids enrolled in program; x-axis = county 1960 pov rate



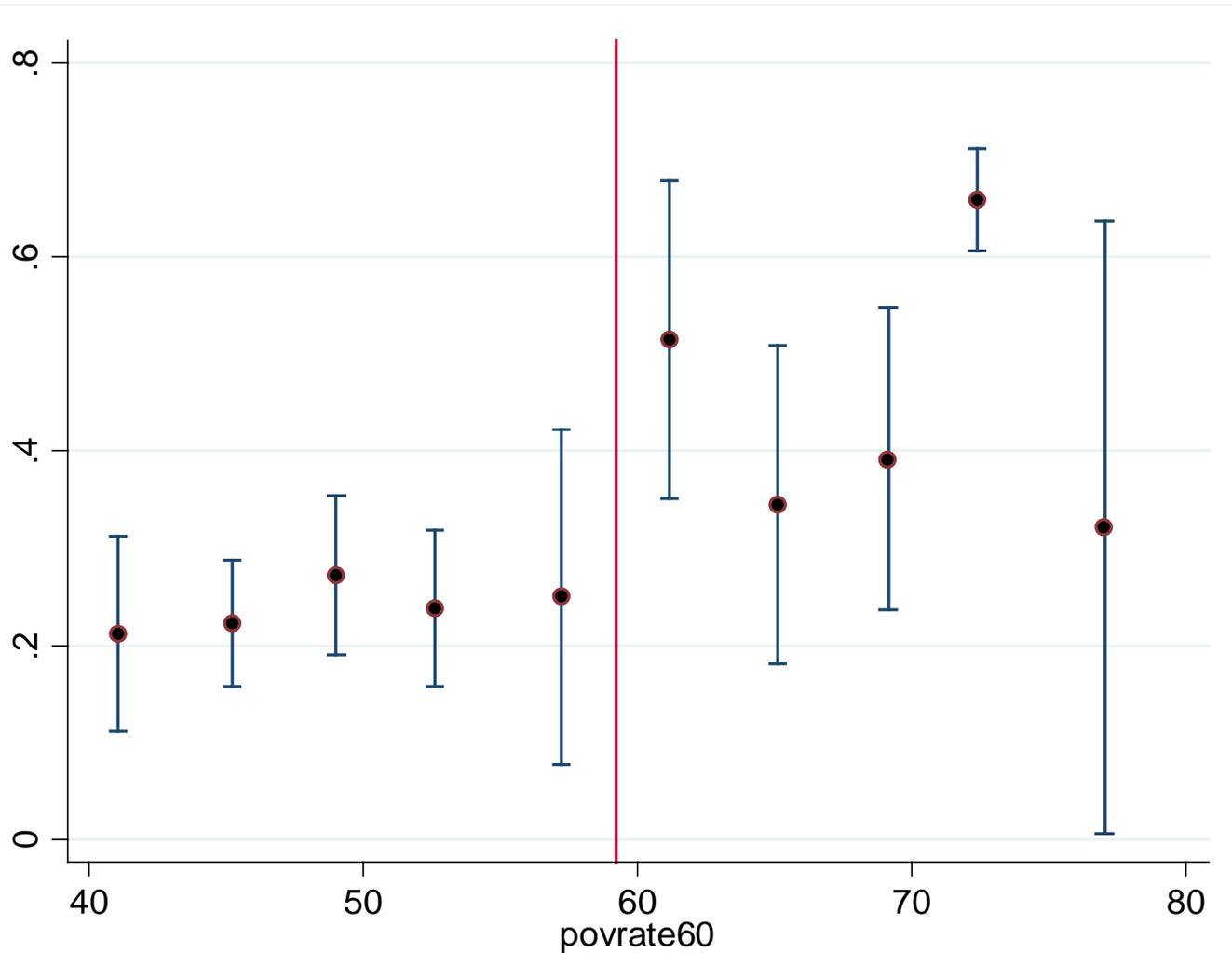
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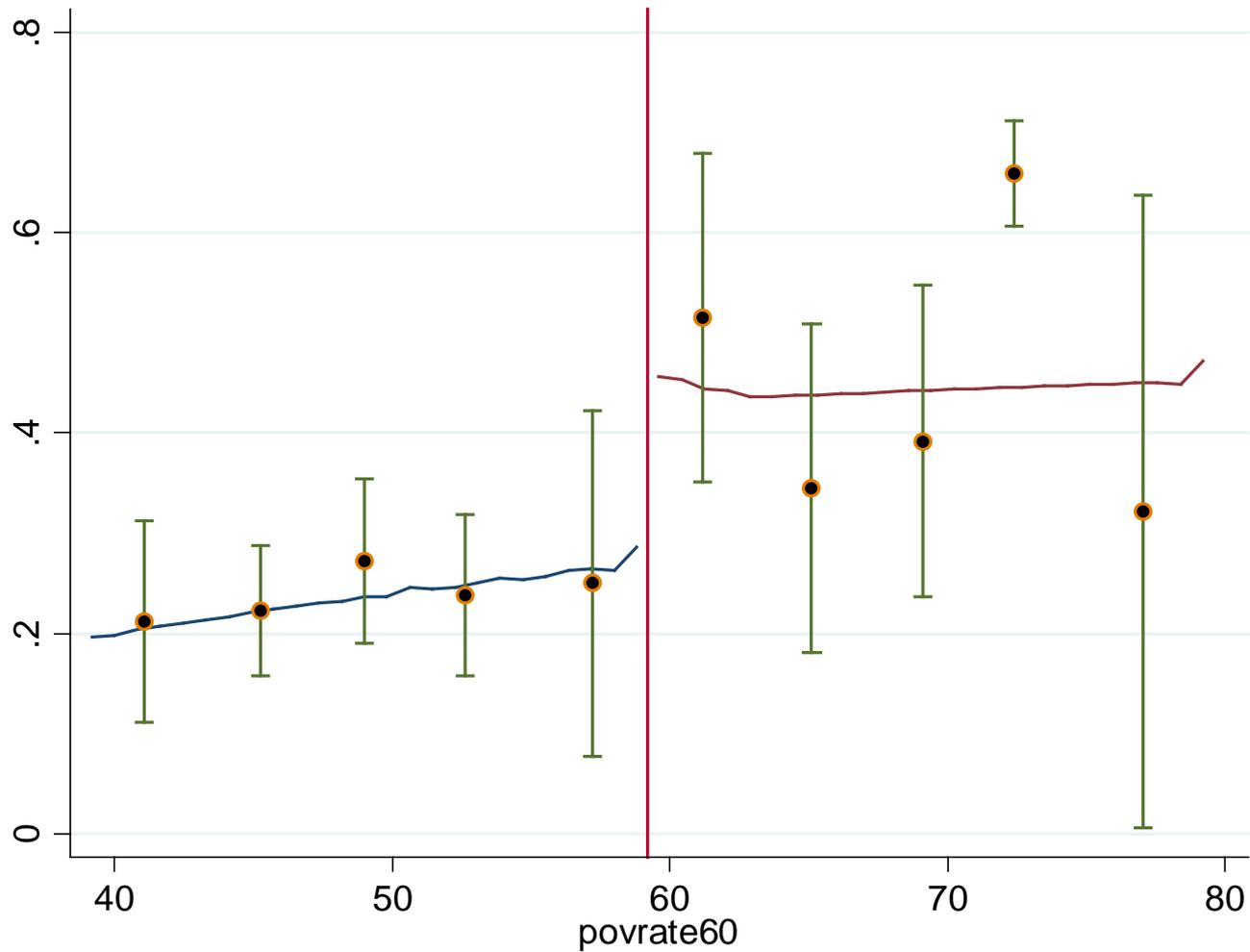
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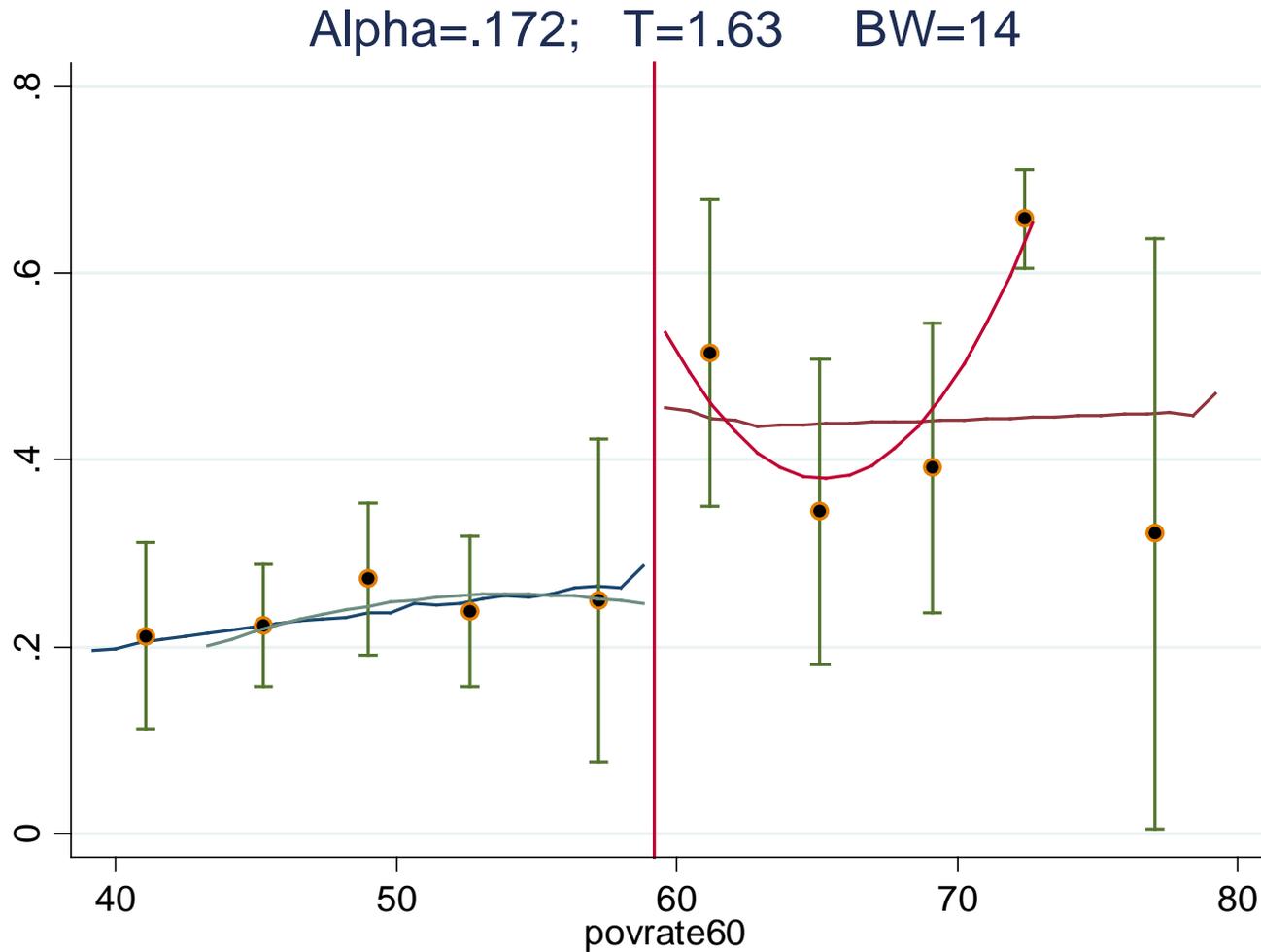
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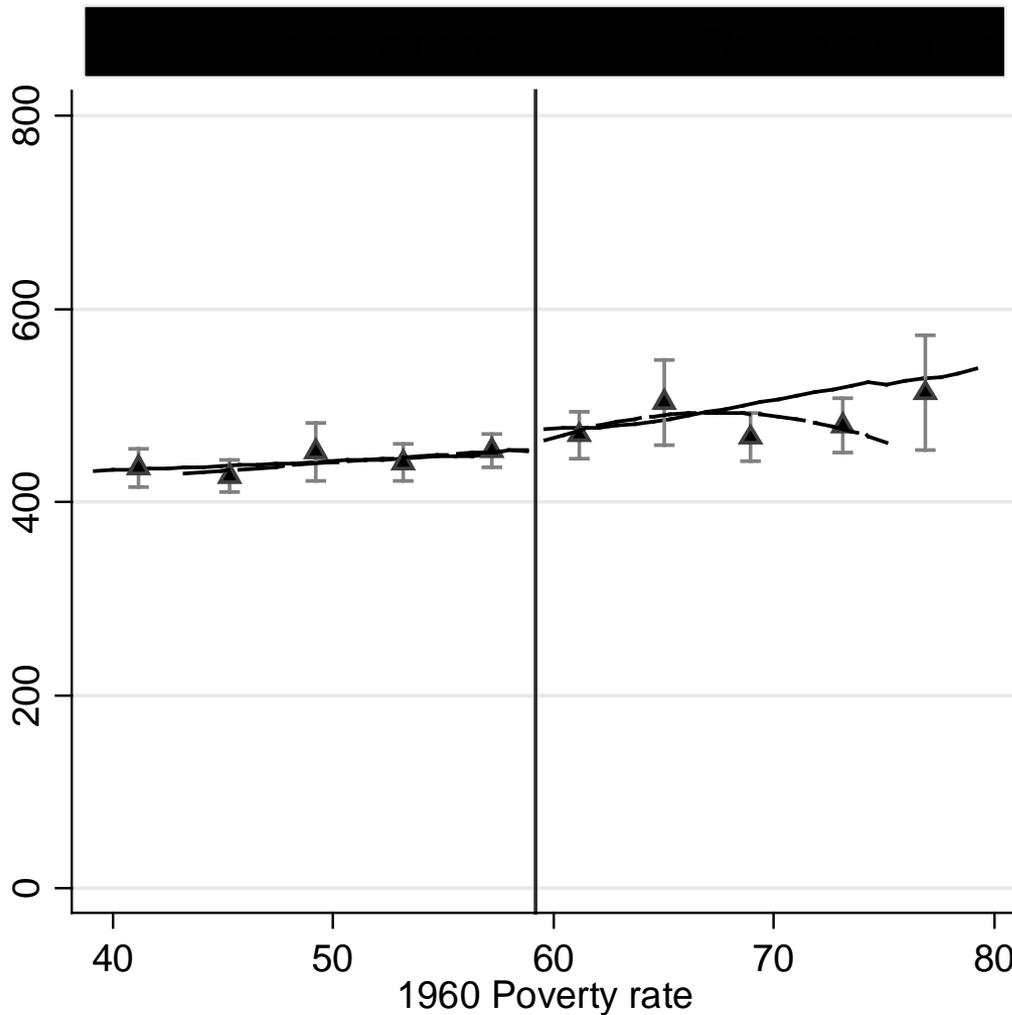
# Head Start participation rates, 1977-78 (NELS)

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# Other Federal Social Spending, 1972

y-axis = Soc spend per capita; x-axis = county 1960 pov rate



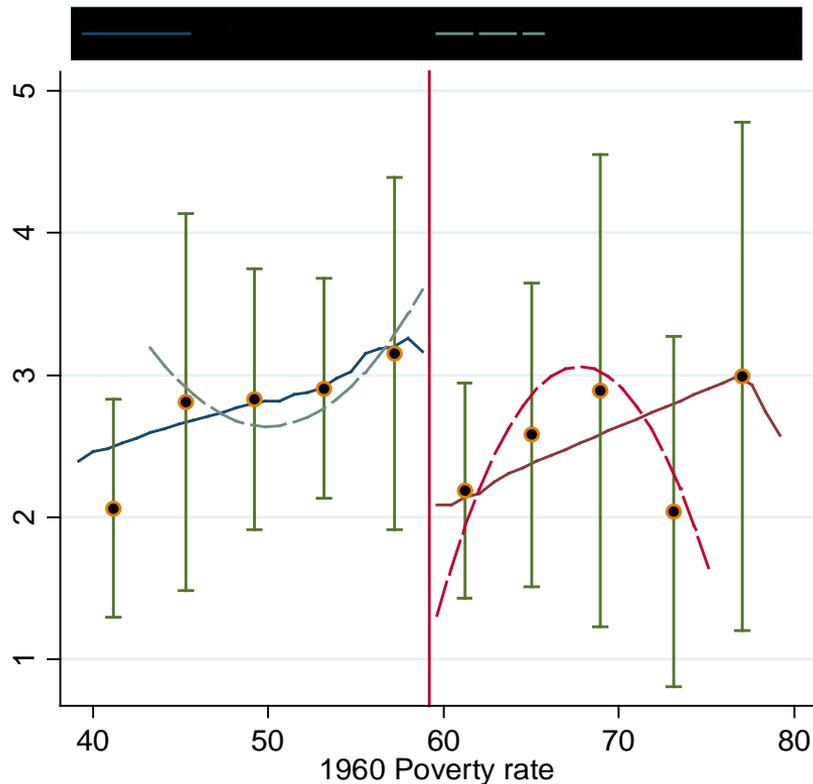
# What happened to causes of death that were screened for by Head Start?

- Recall children's health outcomes were much worse in 1960s than today, particularly for minority kids in poorest counties in the U.S.
- Health problems that might have been identified (and treated earlier) as result of Head Start screening include:
  - TB, other infectious diseases, diabetes, malnutrition, anemias, meningitis, and respiratory conditions

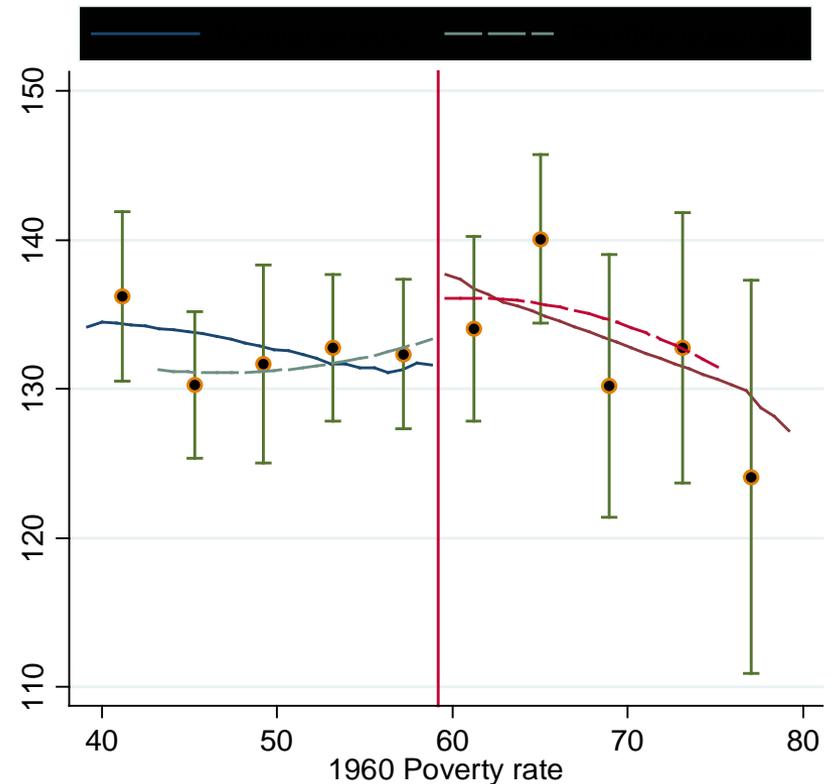
# Child mortality rates from causes screened for by HS

y-axis = deaths per 100,000, 1973-83; x-axis = county 1960 pov rate

## Ages 5-9



## Ages 25+



# Benefits on other long-term outcomes for Head Start children of 1960s-1980s

- Schooling attainment, earnings, perhaps criminal activity (despite test score fade out)
  - Eliana Garces, Janet Currie and Duncan Thomas, 2002 *American Economic Review*
  - Jens Ludwig and Douglas Miller, 2007 *Quarterly Journal of Economics*
  - David Deming, 2009 *American Economic Journal*
    - Finds Head Start's effect on summary index of young adult outcomes is ~80% as large as Perry Preschool's (yet Head Start costs ~50% as much per participant)

# Benefit-cost analysis of Head Start's impacts on previous cohorts?

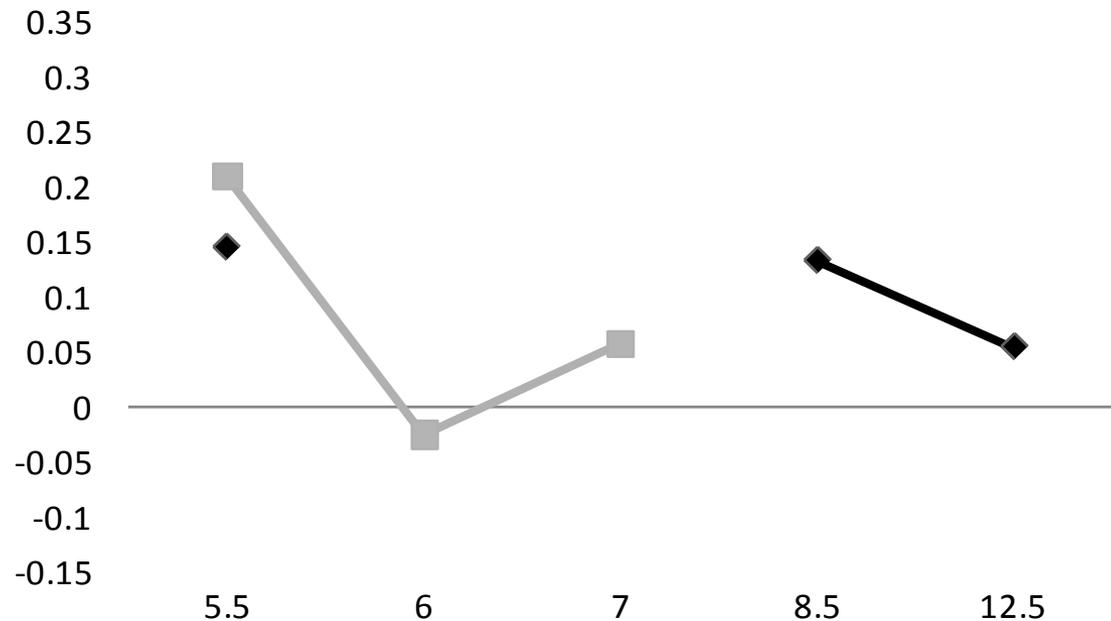
- We think Head Start passes benefit-cost test for previous cohorts, two ways to calculate:
  - Look at link between early test scores and present value of lifetime earnings
  - Look at \$ benefits from Perry Preschool (followed through age 40)
    - Assume ratio of Head Start to Perry lifetime benefits proportional to ratio of Head Start to Perry initial achievement test score impacts
    - See Ludwig and Phillips, 2007 NBER working paper for more details

# What have we learned so far?

- Be nervous about observational regression-adjusted estimates
  - Currie & Thomas control for child age, gender, first born status, log HH permanent income, mother's education, mother's AFQT, mother's height, # siblings when mother was 14, grandmother's education
- Estimated long-term benefits for previous cohorts *despite* test score fade out
  - From two separate research designs, three independent datasets (sibling difference, & regression discontinuity)
  - How does this compare to Head Start Impact Study?

# Comparison of “fade out” in Head Start Impact Study vs. CNLSY79 samples, test score index (Deming, 2009, Table 3)

## Comparison of Head Start Effect Sizes



◆ Older cohort (Deming)

0.145

■ Experimental 4yr old cohort

0.21

-0.025

0.058

0.133

0.055

# Test score impacts for Head Start Impact Study cohort fade out quickly

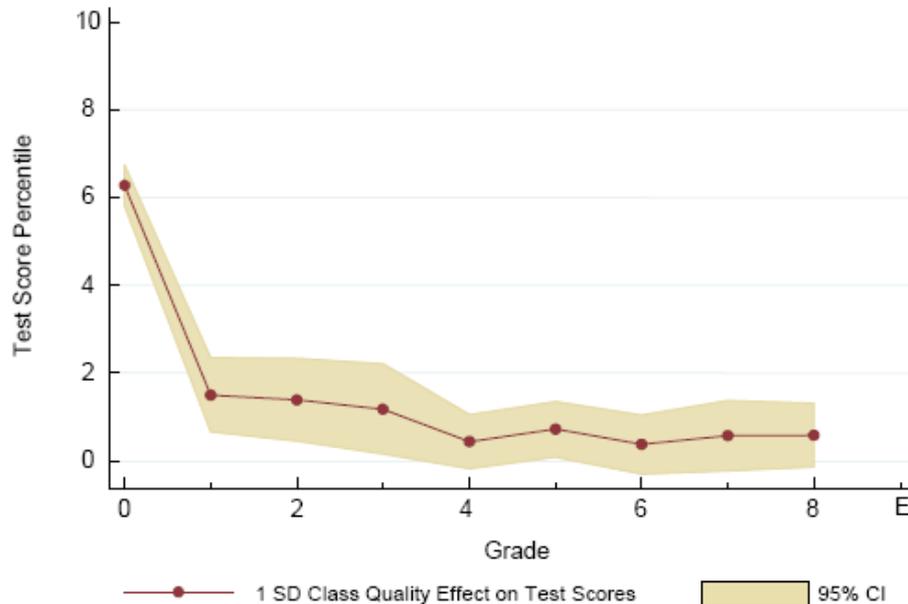
- Puzzle is not necessarily that today's Head Start impacts are “too small,” but rather that they seem to fade out more quickly than what we saw in the past
  - 1. Can we reject hypothesis that Impact Study fade-out more rapid than in Deming (2009) or Leak et al. (2010)?
  - 2. Perhaps previous measures of fade-out subject to non-experimental bias?
  - 3. Or, perhaps something about Head Start has changed?
    - Changes in elementary school quality (fade out vs. catch up?)
    - Impacts on non-cognitive skills changing over time for Head Start?
      - Previous studies look at measures of behavior, but not the same battery of non-cognitive skills as in recent Impact Study, so we can't directly test this hypothesis

# Special Bonus Material!

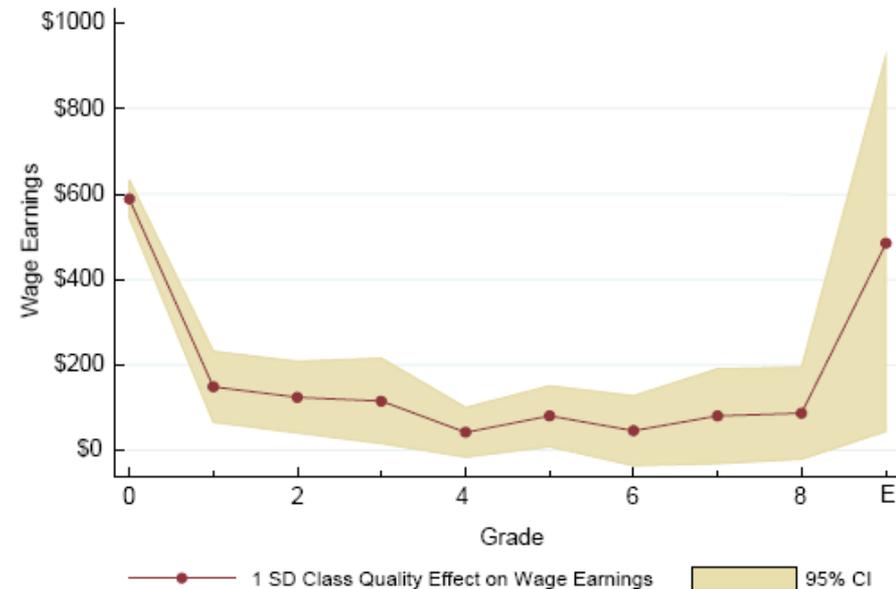
- Effects of Kindergarten classroom quality
  - Chetty et. al. (2011): random allocation of kids to classrooms (& teachers), Tennessee STAR
    - Immediate test score impacts,  $\sim .2$  standard deviations
    - Short-term fade out
    - Then long-run labor market outcomes
      - Test score impacts explain small share of adult earnings impacts
      - Suggestive signs of impacts on non-cognitive measures (teacher reports of student effort, initiative, non-participatory behavior, how student seen to 'value' the class)
      - How do these materials compare to what's captured in Head Start impact study? (Take it away, Katherine Magnuson...)

# Chetty et al (2011) Figure 6

(a) Impact of KG Class Quality on Test Scores



(b) Impact of KG Class Quality on Predicted Wage Earnings



“While the quality of education is best judged by directly measuring its impacts on adult outcomes, our analysis suggests that contemporaneous (end-of-year) test scores are a reasonably good short-run measure of the quality of a classroom.”

# Returning to our original question

- Does Head Start generate lasting benefits (pass benefit-cost test) for current cohorts?
  - Initial test score impacts are of same size as Head Start's impacts on previous cohorts, and same size as STAR test score impacts
  - Those interventions all have similar costs (~\$7K-ish per child) and pass benefit-cost test despite test score fade out
  - Not clear NHSIS fade out necessarily more rapid than other early interventions that pass benefit-cost test (esp. Leak et al., 2010, STAR)
    - If it is, why? (Is this increased treatment "fade out" or control "catch up"?)
    - What are the key mechanisms through which Head Start in the past, and STAR, influence long-term outcomes, and how are these affected in NHSIS?
  - I would say 95% confidence interval for what we know about current Head Start covers both (benefit<cost) and (benefit>cost)