Status versus Growth: The Distributional Effects of Educational Accountability Policies

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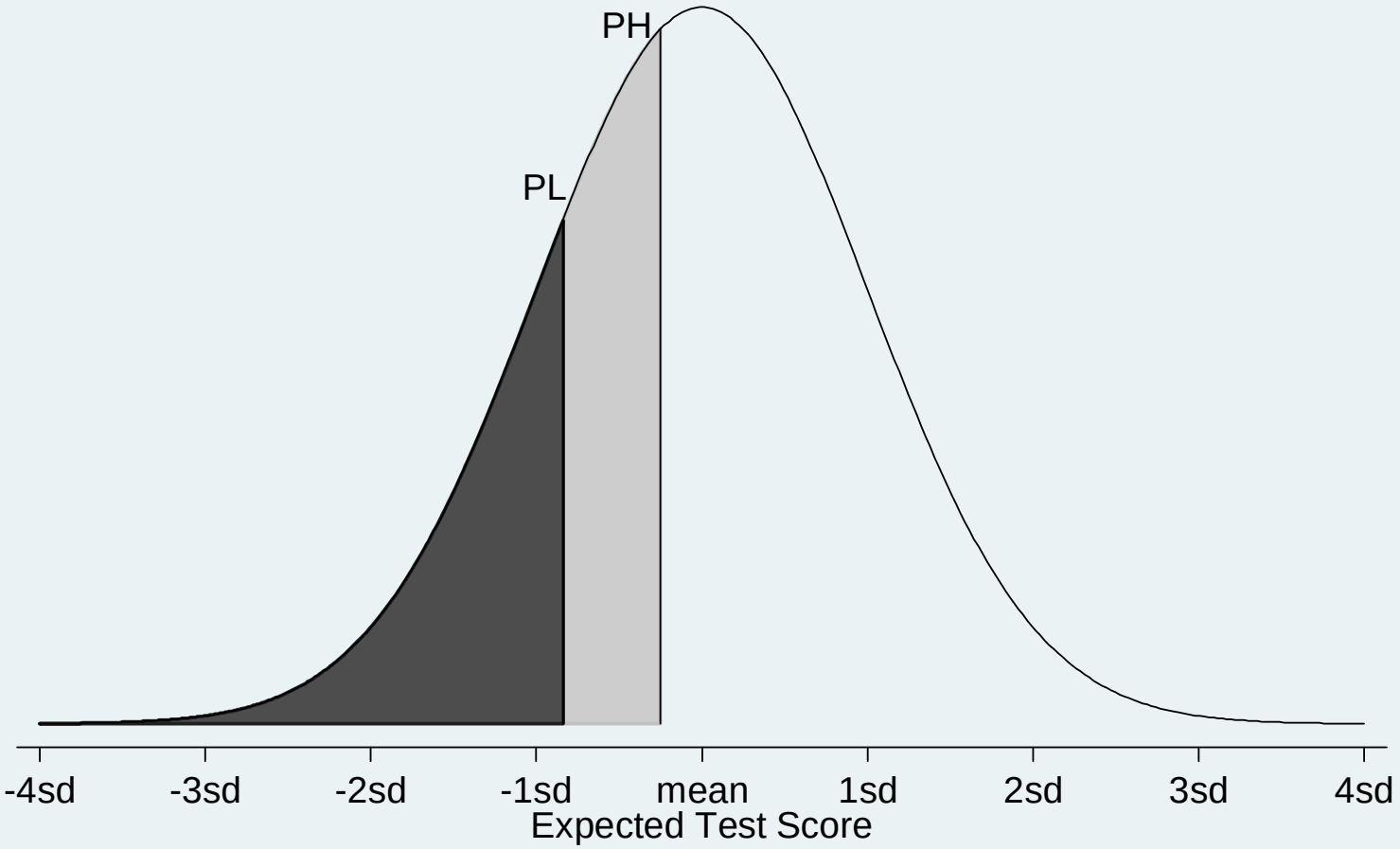
North Carolina Policy Context

- State Accountability Policy
  - North Carolina's growth model
    - Average student-level growth overall
      - Provides bonuses for making expected or high growth
      - Started in 1996-1997
- Federal Accountability Policy
  - NCLB's status approach
    - Percent of students at grade level overall and by subgroup
      - Relies on negative sanctions
      - Started in spring 2002-2003

Incentives Under the Two Approaches

- Accountability based on status
  - Incentive is to invest in students for whom benefits>=costs. Predictions:
    - Students below proficiency level will get more attention
      - But costs may exceed benefits for those way below the cut point
    - Students above proficiency level will get no more attention
      - May get less attention if resources are shifted to other students
- Accountability based on growth
  - Incentive is to invest in students most likely to have high growth

Fig. 1 Comparison of Proficiency Levels



Note: PL is low proficiency level (20% failing), PH is high proficiency level (40% failing)

Research Questions

- Is accountability pressure associated with
  - Distributional effects of any kind?
  - Gains for low achieving students?
  - Negative effects for very low achieving students?
  - Offsetting effects?
- If found, do these effects differ by
  - Type of accountability pressure (status vs growth)?
  - Tested subject (math or reading)?

Distributional Effects: Prior Research

- Qualitative Studies
  - Schools facing accountability pressure may “triage” students
    - Reclassify students as special needs or LEP
    - Focus on the “bubble kids”
      - Gillborn & Youdell 2000; Booher-Jennings 2005; Weitz & Rosenbaum 2007
- Econometric studies
  - Middle achievers gain more than high and low achievers
    - Neal & Schanzenbach 2007; Krieg 2008
  - Low achievers gain more than middle and high achievers
    - Ballou & Springer 2008; Reback 2008

– We cannot say anything about many other issues: e.g. overall achievement or test prep vs. real learning.

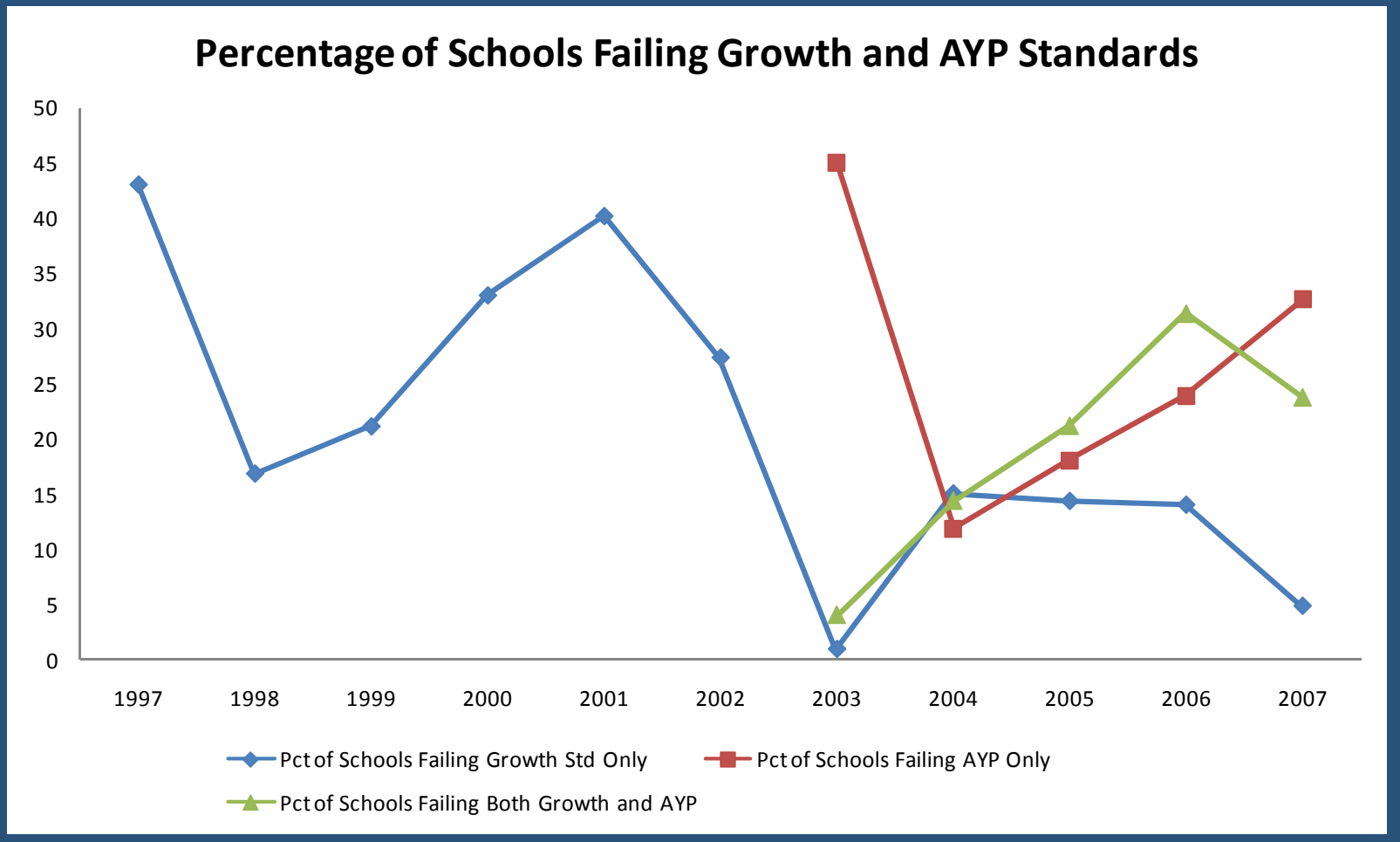
Data

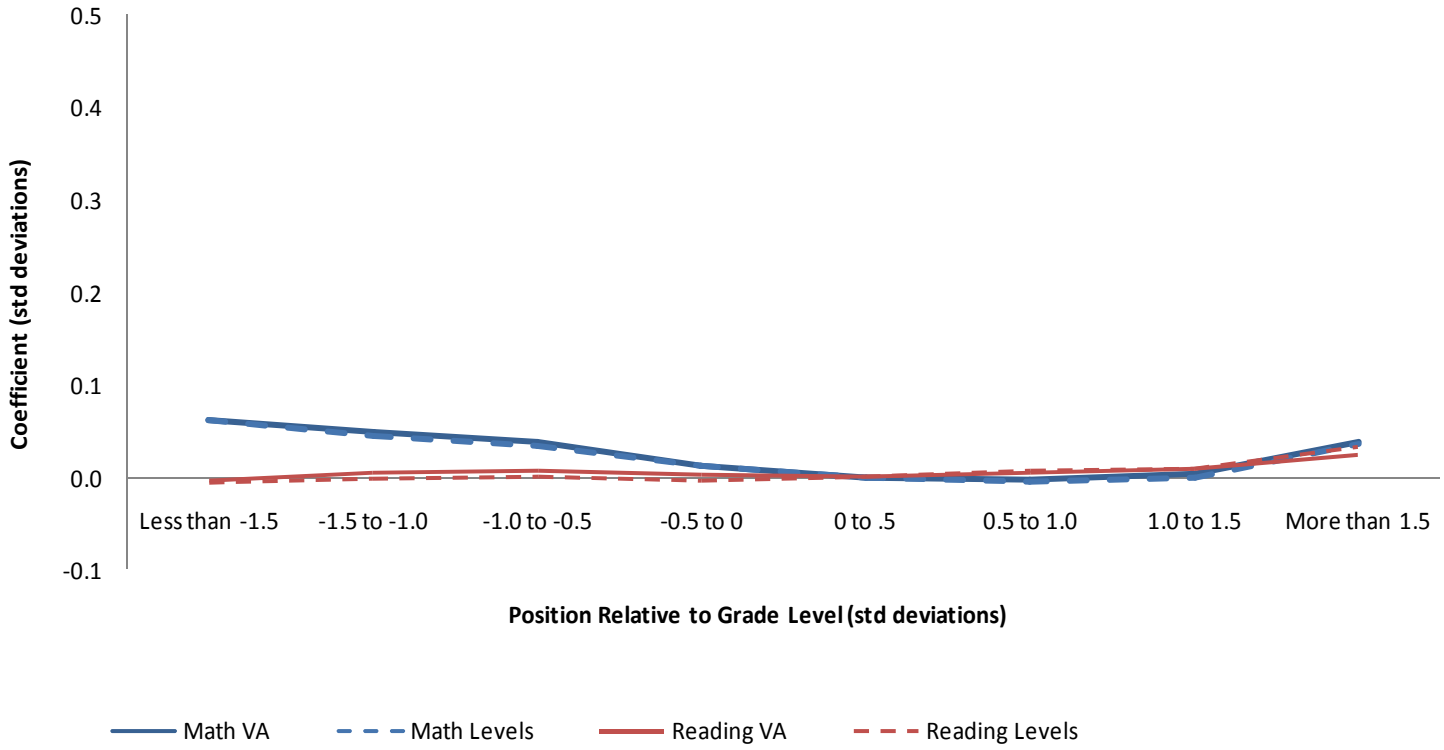
- All elementary and middle school students enrolled in a public school in North Carolina
  - Ten-year period (1998-2007)
  - Multiple cohorts over time
- Dependent variable
  - Standardized reading and math test score

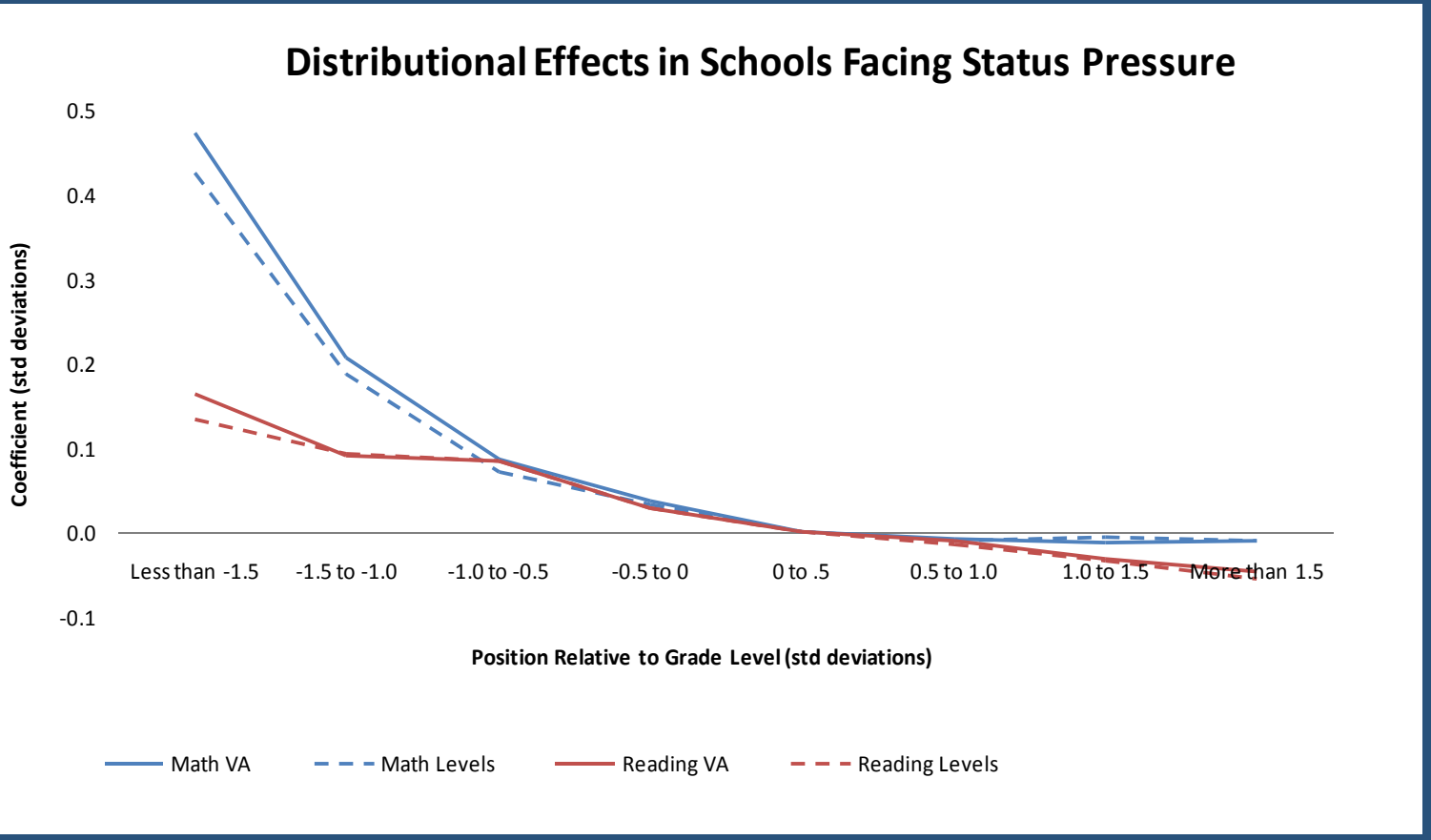
Model

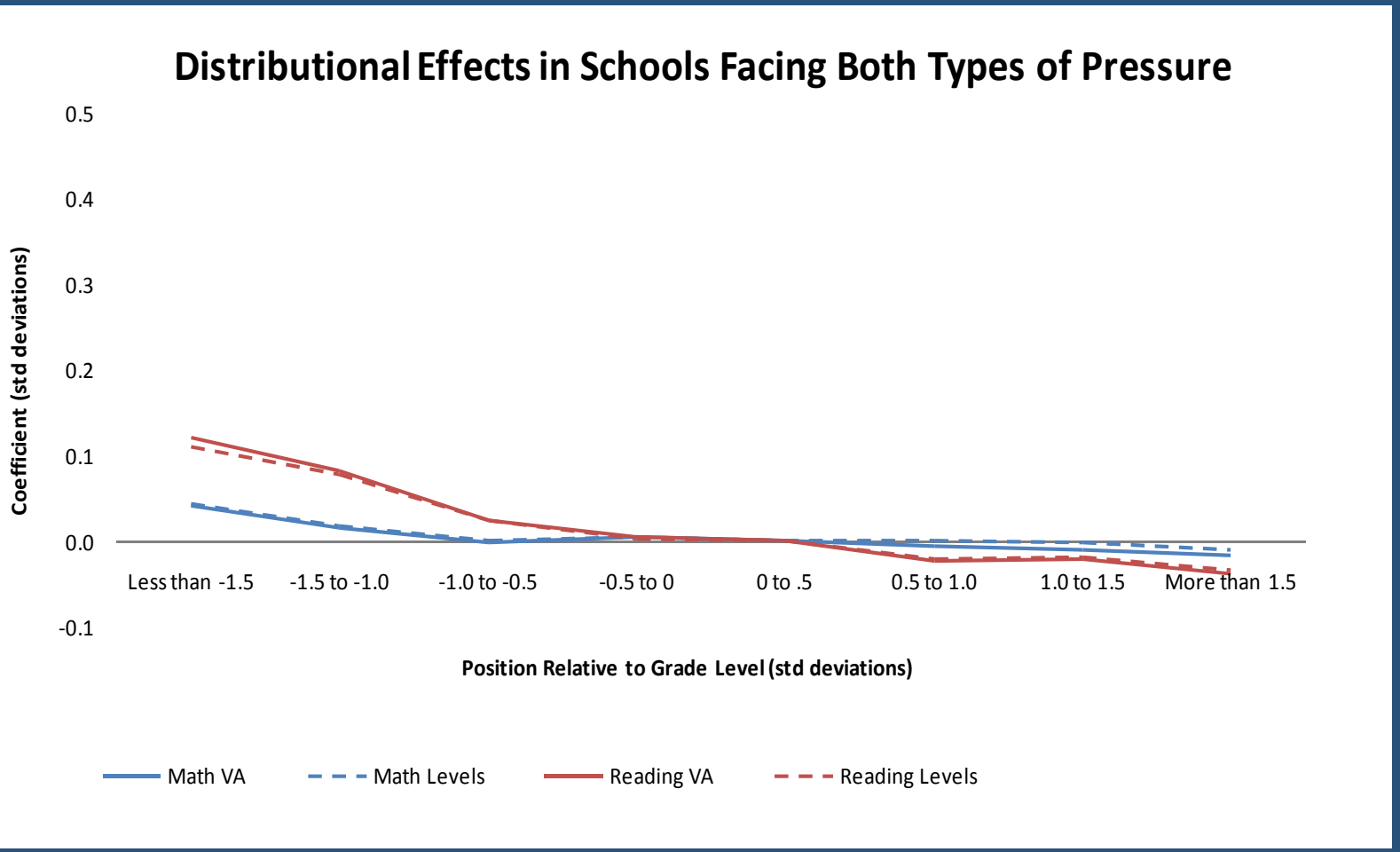
$$Ach_t = f(AP_{t-1}, Low_{t-1}, High_{t-1}, AP*Low_{t-1}, AP*High_{t-1})$$

- Main predictors are entered as lagged terms (t-1)
- Main Effects
  - AP – accountability pressure
  - Low/High – position below/above grade level
- Interaction terms
  - $AP*Low_{t-1}$, $AP*High_{t-1}$
    - **Does test score differ by position in the prior achievement distribution and accountability pressure?**
- Specification
  - Value added
  - Includes student and school fixed effects


Percentage of Schools Failing Growth and AYP Standards
50
45
40
35
30
25
20
15
10
5
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
Pct of Schools Failing Growth Std Only
Pct of Schools Failing AYP Only
Pct of Schools Failing Both Growth and AYP


Distributional Effects in Schools Facing Growth Pressure
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
Coefficient (std deviations)
Less than -1.5
-1.5 to -1.0
-1.0 to -0.5
-0.5 to 0
0 to .5
0.5 to 1.0
1.0 to 1.5
More than 1.5
Position Relative to Grade Level (std deviations)
Math VA
Math Levels
Reading VA
Reading Levels


Distributional Effects in Schools Facing Status Pressure
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
Coefficient (std deviations)
Less than -1.5
-1.5 to -1.0
-1.0 to -0.5
-0.5 to 0
0 to .5
0.5 to 1.0
1.0 to 1.5
More than 1.5
Position Relative to Grade Level (std deviations)
Math VA
Math Levels
Reading VA
Reading Levels


Distributional Effects in Schools Facing Both Types of Pressure
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
Coefficient (std deviations)
Less than -1.5
-1.5 to -1.0
-1.0 to -0.5
-0.5 to 0
0 to .5
0.5 to 1.0
1.0 to 1.5
More than 1.5
Position Relative to Grade Level (std deviations)
Math VA
Math Levels
Reading VA
Reading Levels

Robustness Check

- Adjusted Gain Specification
  - Adjusts for mean reversion
    - Accounts for the possibility of differential gains at each point in the achievement distributions
  - Generates patterns that are very similar to those of our basic specification.
    - Particularly true for the growth approach
      - Relative gains at both ends of the distribution
    - Some differences for the status approach
      - But still negative effect in reading for high achievers

Conclusions

- We find within-school distributional effects
  - Relationship to policy goals?
- Virtually no evidence of “triage”
  - Evidence of positive gains for all student below proficiency in math
  - Also all students below proficiency in reading, but only under the status approach

Conclusions

- Distributional effects of the two approaches differ
  - Growth approach – relative *gains* at top of the distribution, with gains or no effects at the bottom
  - Status approach – relative *losses* at the top of the distribution in reading, with gains at the bottom

Final Note

- We examine only the distributional effects of the two types of accountability
- Many other considerations are relevant
  - Average effects on achievement
  - Unintended side effects
    - Narrowing of the curriculum
    - Manipulating the test pool
    - Teaching to the test
- But distributional effects, we believe, are important for the policy debate