The Effect of NCLB on School Services and Student Outcomes

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Motivation and Background

- Accountability pressure on schools has been shown to have several important effects
  - Raising achievement (in short/medium run)
  - Targeting (students whose scores count most)
  - Gaming (altering tested population, teaching to the test, outright cheating)
- Research on school accountability has been limited to particular states/cities and most has focused on systems preceding NCLB
  - Main obstacle is lack of (good) national data

Overview of Our Study

- Assemble NCLB related data and outcomes for all schools nationwide from 2002 +
  - Compile information on all states' NCLB rules
- Find schools that were at substantial risk of failing AYP and therefore faced pressure under NCLB
  - Substantial variation across states
- Use panel data from the ECLS to examine if schools facing pressure from NCLB…
  - …raised achievement on low-stakes exams
  - …increased resources devoted to achievement
  - …targeted resources towards subgroups

NCLB Data Collection

- There is no comprehensive dataset covering NCLB related outcomes/variables nationwide
  - AYP status, proficiency rates (overall/by subgroup) subgroup size/significance, rules and regulations
- We compile data from a variety of sources
  - Standard & Poor's School Data Direct
  - National AYP and Identification Database
  - National Longitudinal School-Level State Assessment Score Database
  - School report cards / State Dept.'s of Education
- Data quality varies significantly across states

Status of NCLB Data Collection

	Available from Existing Database	We Have Collected	Not Available
School Made AYP in 2003-04	39	1	0
Subgroup Made AYP in 2003-04	31	7	2
Percent Proficient by Subgroup in 2003-04	14	25	1
Subgroup Size 2003-04	6	27	7

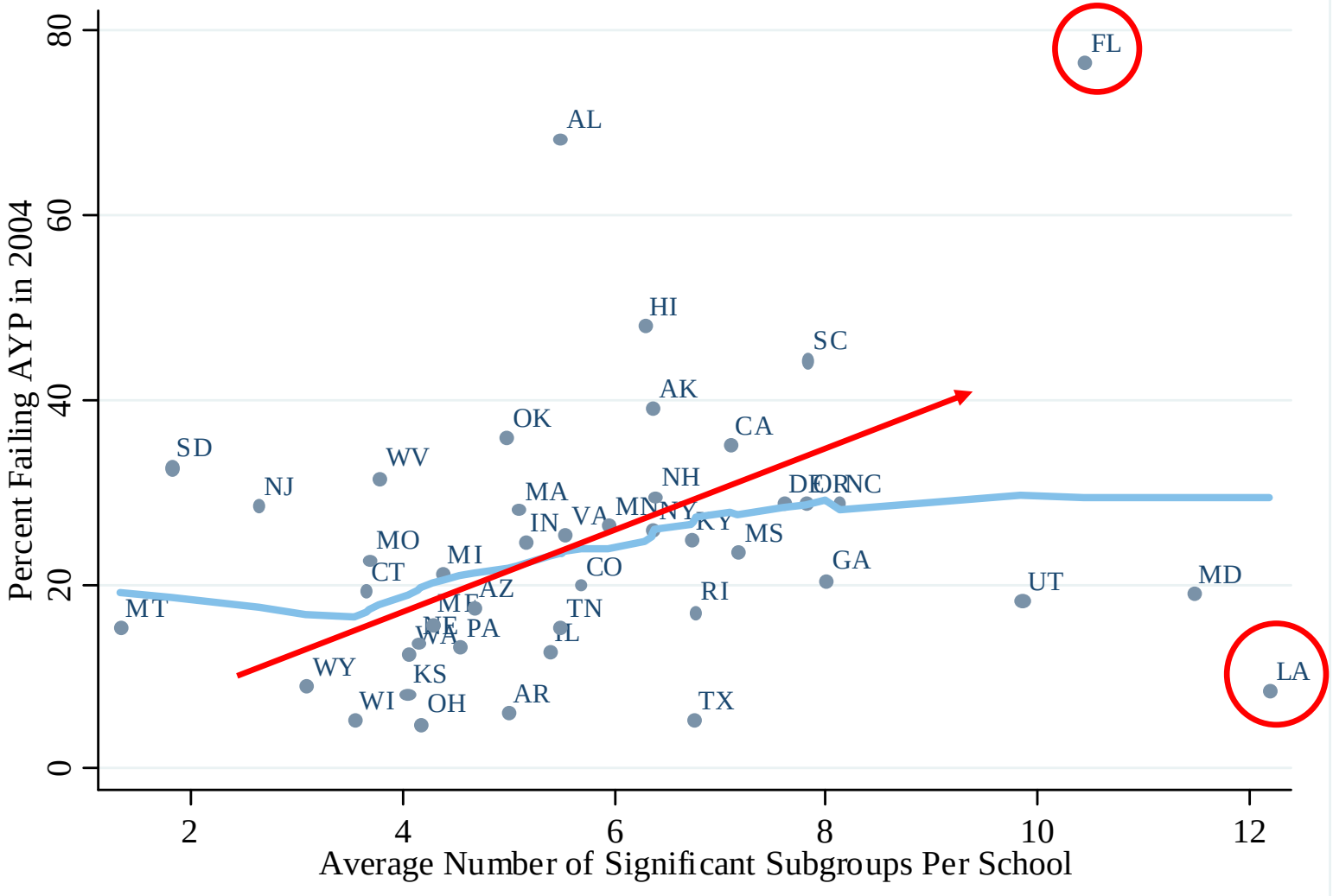
Note: Based on the 40 states sampled in the ECLS database. Existing databases refer to Standard & Poor's School Data Direct and the National AYP and Identification Database.

Which Children Have Been Left Behind?

	Unweighted		*Weighted by Enrollment*	
	Failed AYP	Made AYP	Failed AYP	Made AYP
Total Number of Schools	19,483	65,332	19,483	65,332
Average Enrollment	727	500	1,216	800
Student/Teacher Ratio	17.4	16.1	18.4	17.2
Percent of Schools…				
School Title I Eligible	39.9%	29.4%	34.8%	27.6%
Located in City	36.5%	23.1%	39.2%	27.7%
Located in Urban Fringe	31.9%	33.3%	37.8%	41.1%
Located in Town or Rural Area	31.5%	43.5%	23.0%	31.2%
Serving Primary Grades	36.0%	64.1%	27.1%	56.3%
Serving Middle Grades	27.4%	15.5%	29.4%	17.0%
Serving High School Grades	27.9%	17.1%	39.1%	24.5%
Ungraded/Other	8.5%	3.2%	4.4%	2.2%
Percent of Students…				
Eligible for Free/Reduced Lunch	54.2%	39.9%	49.3%	37.0%
White	46.5%	67.7%	46.2%	63.6%
Black	25.6%	13.2%	24.1%	14.1%
Hispanic	20.8%	13.6%	23.7%	16.3%
Asian	3.4%	3.4%	4.3%	4.5%

Note: Includes data from 50 states. Data on school and student characteristics taken from the Common Core of Data, 2003-04. For schools in Tennessee, data on student ethnicity taken from 1998-99 and data on free/reduced price lunch eligibility is unavailable.

NCLB Policy Variation



Note: Data from six states are unavailable.

Early Childhood Longitudinal Survey (ECLS)

- Nationally representative sample of kindergarten students in school year 1998-99
  - Includes students from 40 states
  - Refreshed sample in 1st grade to account for entry
- One of the first cohorts tested as part of NCLB
  - Followed up at 1st, 3rd, 5th and 8th grade
- Restricted use version allows us to link schools attended by ECLS students with NCLB data
- Rich data set with numerous outcomes
  - Annual IRT tests in math, reading, and science
  - Behavioral outcomes, resource allocation
  - Teacher and school administrator surveys

Descriptive Statistics: Current ECLS Sample

Examples of Student-Level Outcomes	Mean	SD
Reading Z-score	**0.17**	**0.90**
Student has difficulties with…		
Confidence/Interest in Reading	**0.22**	
Confidence/Interest in Math	**0.20**	
Behavior	**0.23**	
Examples of Reading Teacher-Level Outcomes		
Hours Spent on Reading Test Preparation	**13.48**	**16.93**
Limited Control over Class Curriculum, Pedagogy, Discipline	**0.49**	
Example of a School-Level Outcome		
Majority of Surveyed Teachers Report that School Administrators Don't Handle Outside Pressure Well	**0.19**	

Methodology (Part 1)

- Use NCLB related data to predict which schools were on the margin of failing AYP
  - Use 2002 data to predict probability of failing AYP in 2004 at either school or subgroup levels
  - Define a school on the margin of failing AYP if…

    …they have at least one group with P(fail)>25%

    …they have no group with P(fail)>75%
- Assumption is schools on the AYP margin have significantly stronger incentives to boost high stakes exam performance

Methodology: 2nd Stage

- Use ECLS to examine achievement growth, other outcomes, and resource allocation
- "Differences-in-differences" style approach
- First difference:

  Students in schools ***on the AYP margin*** vs. those in similar schools ***not on the margin*** because they are located in a different state
- Second difference:

  Students in similar schools in same two states, ***both not on the AYP margin***

A Tale of Two States

- Take two pairs of schools, from NJ and PA

School name	State	Title I eligible	Percent poor	Percent white	Percent black	Percent Hispanic	Size
Hamilton School	PA	yes	89%	5%	83%	10%	454
Richland Elementary	PA	no	18%	94%	1%	3%	472
Bradley Elementary	NJ	yes	87%	4%	81%	15%	418
Upper Pittsgrove	NJ	no	16%	93%	4%	3%	419

- Even though pairs are observably similar, differences in state rules create arguably exogenous variation in NCLB pressure

Sources of Bias, Limitations

- Two important sources of bias
  - Systematic policy variation that coincides with NCLB pressure (e.g., aid to schools)
  - Misclassifying schools on AYP margin will bias us towards zero (classical measurement error)
- Several important limitations
  - Cannot compare high and low stakes exams
  - ECLS is representative, but not strictly national
  - Examining students' cumulative progress over 2 years
  - Like any study of NCLB, we examine pressure conditional on state accountability systems

First Stage Analysis (Sample States)

- NOTE: We have yet to complete 1st stage for a number of ECLS states (25% of sample)
  - *All results shown today are thus preliminary*

	Pr(AYP) **< .25**	Pr(AYP) = **.25 to.75**	Pr(AYP) > **.75**
% of all schools	**2%**	**16%**	**82%**
% in category passing AYP	**8%**	**43%**	**94%**

- AYP failure is more common in reading (11%) than math (8%)
- Enormous variation in which subgroups are at risk of failing. Pr(AYP) is < .75 for
  - **1 in 10,000** numerically significant **white** subgroups in math
  - **1 in 4** numerically significant **African American** subgroups in math
  - **4 in 10** numerically significant **special education** subgroups in math

AYP Pressure & Average Student Progress on Low-stakes tests: PRELIMINARY findings

	School is on the Margin for AYP in…		
Mean Student Test Scores	Either Subject	Reading	Math
Reading Z-score	-0.004 (0.035)		
Math Z-score	-0.023 (0.039)		
Science Z-score	0.019 (0.041)		

AYP Pressure and Student/Staff Attitudes

	Either Subject		Reading		Math
Student has low…					
Confidence/Interest in Reading	**0.049**		**0.075**	**	
	(0.032)		**(0.034)**		
Confidence/Interest in Math	**-0.030**				**-0.053**
	(0.030)				**(0.034)**
Teachers report that school administrator doesn't handle outside pressure well	**0.054**				
	(0.036)				
Teacher reports limited control over classroom decisions					
Math Teacher	**0.064**	*			**0.031**
	(0.039)				**(0.049)**
Reading Teacher	**0.057**		**0.036**		
	(0.035)		**(0.036)**		

Results for Resources and Time-use

	Either Subject	Reading	Math
Hours Spent on Test Preparation			
Reading Teacher	**2.5**	**3.0***	
	(1.6)	**(1.8)**	
Math Teacher	**2.4**		**2.7**
	(1.7)		**(2.1)**
Uses Ability Grouping >= Once per Week			
Reading Teacher	**0.01**	**-0.01**	
	(0.04)	**(0.04)**	
Math Teacher	**-0.03**		**-0.10****
	(0.04)		**(0.05)**
Small Group/Individual Reading Tutoring	**-0.09****	**-0.08***	
	(0.04)	**(0.04)**	

Findings and Conclusions

- States vary widely in rates of making AYP
  - Cross-state variation in student academic aptitude or in exam difficulty explains relatively little of this variation
  - Some variation is predicted by minimum significant subgroup size and "safe harbor" rules allowing lower required pass rates for smaller subgroups
- Preliminary results suggest NCLB pressure…
  - Influences student and staff attitudes and teachers' time use and instructional strategies
  - Has small net effects on average student test score growth on low-stakes exams

Next Steps

- Complete NCLB data collection
- Incorporate remaining ECLS states into 2nd stage
- Exploit state variation in which grades contributed to NCLB during our sample period
  - Similar to Ballou & Springer's approach
- Examine effects by…
  - Schools' Title I eligibility
  - Students' position in distribution of prior achievement (i.e., near or far from their states' passing threshold)
  - Students' subgroup membership (race, etc.)