PROGRAM RISE DI INDONESIA

Cheating on National Exams in Indonesia

How big is the problem?

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Anecdotal evidence of widespread cheating

Indonesian Ombudsman Finds Cheating Practice in National Exam

5 April 2016 13:20 WIB

Tempo.co

Students get high scores by cheating

Fedina S. Sundaryani

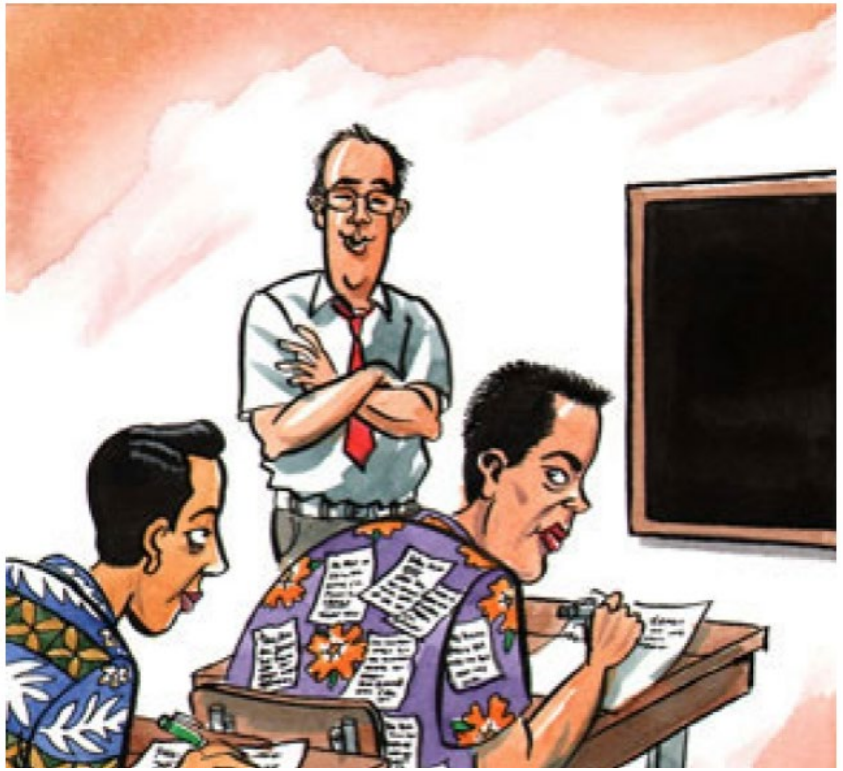
The Jakarta Post

Jakarta / Mon, June 15, 2015 / 10:13 am

Indonesian schools

More cheating, or else!

Scandals in the classroom



The Economist, 2011

The national exam is important for admissions

National Exam aims to measure student achievement…

- Determines acceptance into junior secondary school, senior secondary school, and university
- Condition for graduation (until 2016)

… and school quality

- Percentage of students who pass the exam

  → Pressure for schools to have 100% pass rate

Why is cheating a problem?

1. **Cheating makes it impossible to assess the learning outcomes of the education system**

2. **Students do not need to study and teachers do not need to teach to pass the exam**

But how big is the problem?

We exploit a national policy against cheating

- The Government of Indonesia (GoI) took several measures to fight cheating in junior secondary schools since 2015

Integrity Score (2015-present)	Computer-Based Testing (CBT) (2015-present)
• Identify cheating based on answer patterns • All schools	• Eliminate traditional cheating practices • Phased in

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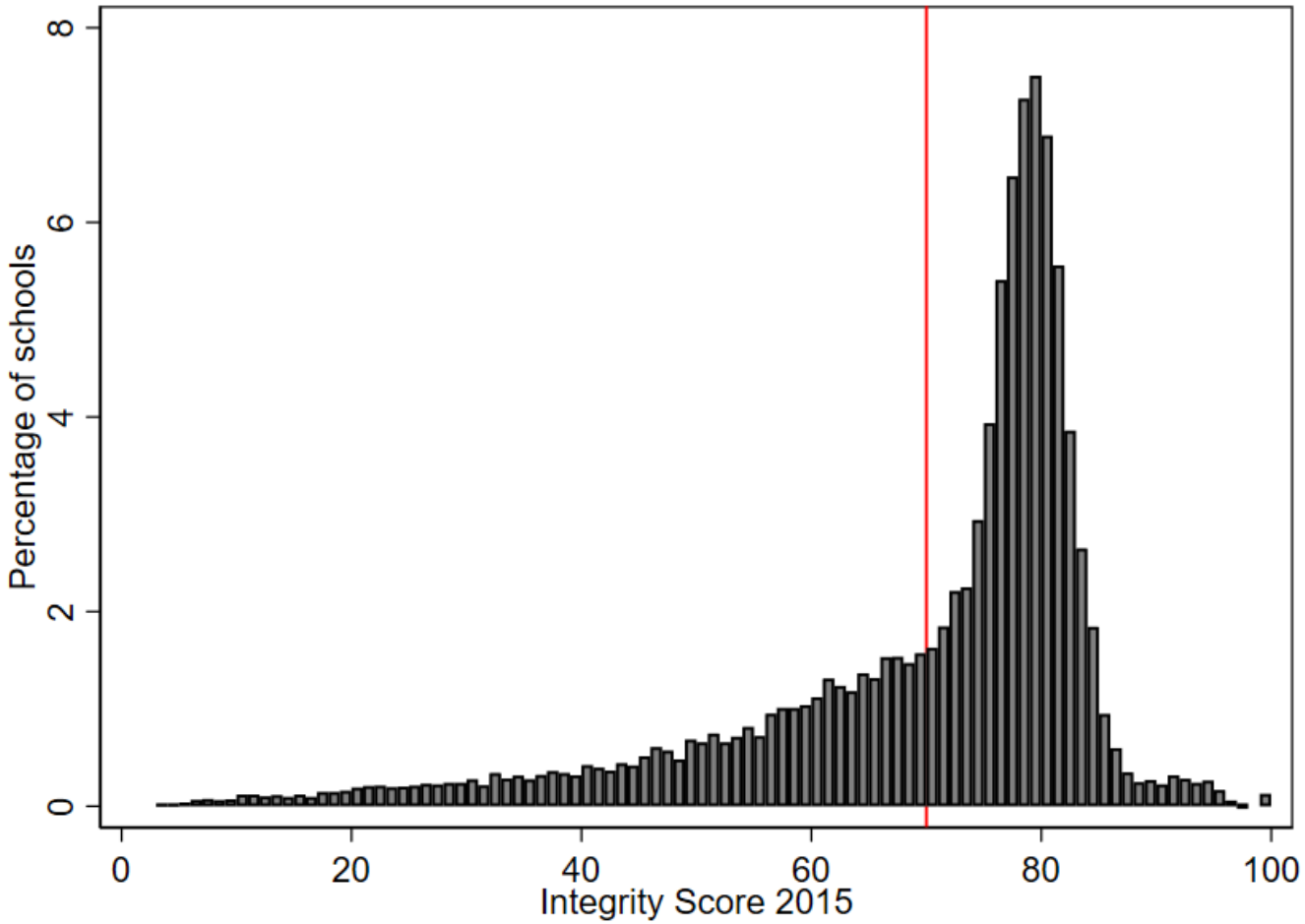
GoI generates the integrity score by school

- Index range 0-100
- Higher value → higher integrity → less cheating

- < 70 → sufficient evidence for substantial cheating
- **34%** of schools had a score below 70 in 2015



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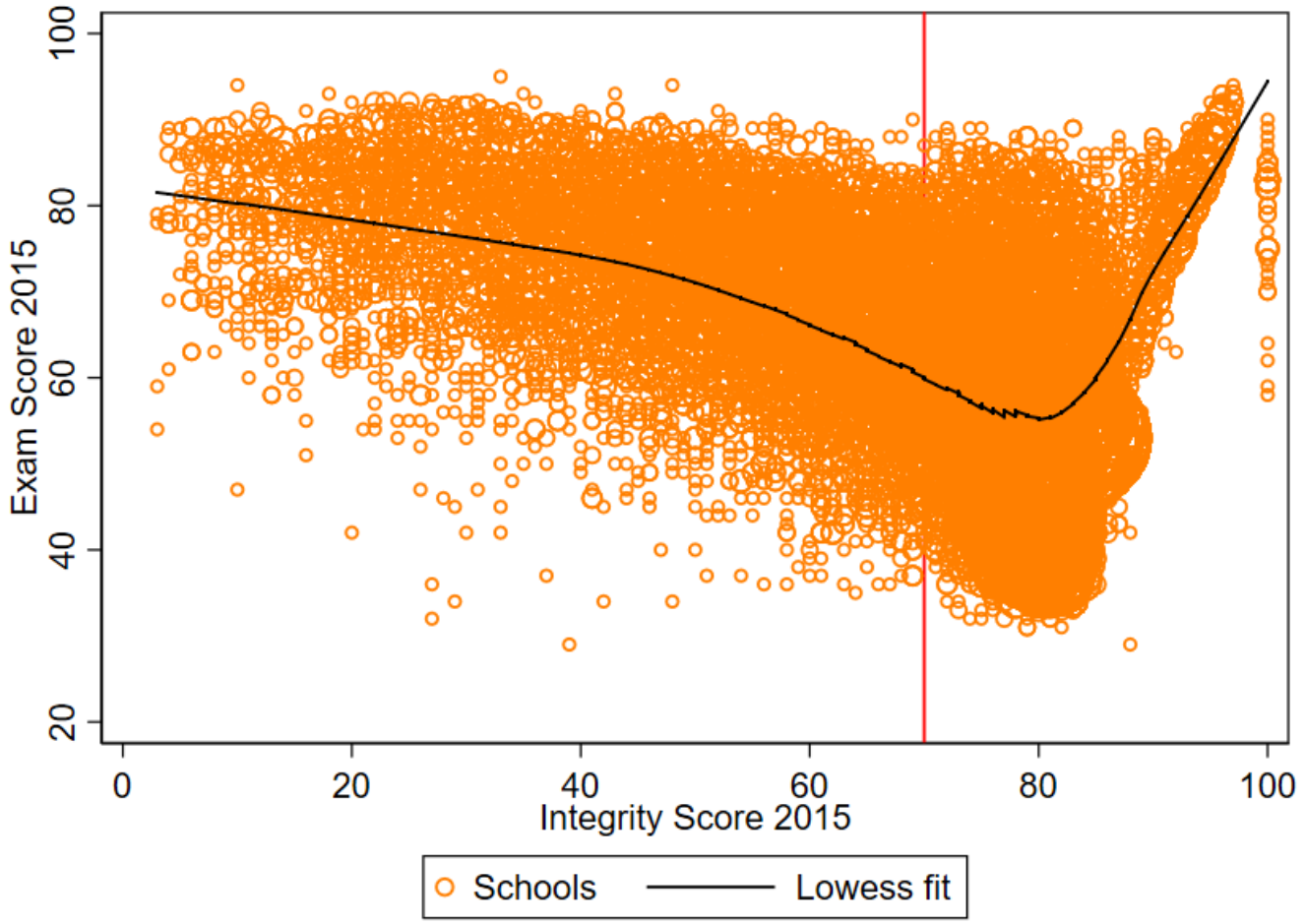
The integrity score has a negative correlation with exam scores



CBT offers students and teachers fewer opportunities to cheat

Students get questions directly from server

Test questions are different and in different order for each student

Printing companies cannot leak answer sheets

Teachers and principals cannot coach students

Students cannot copy answers

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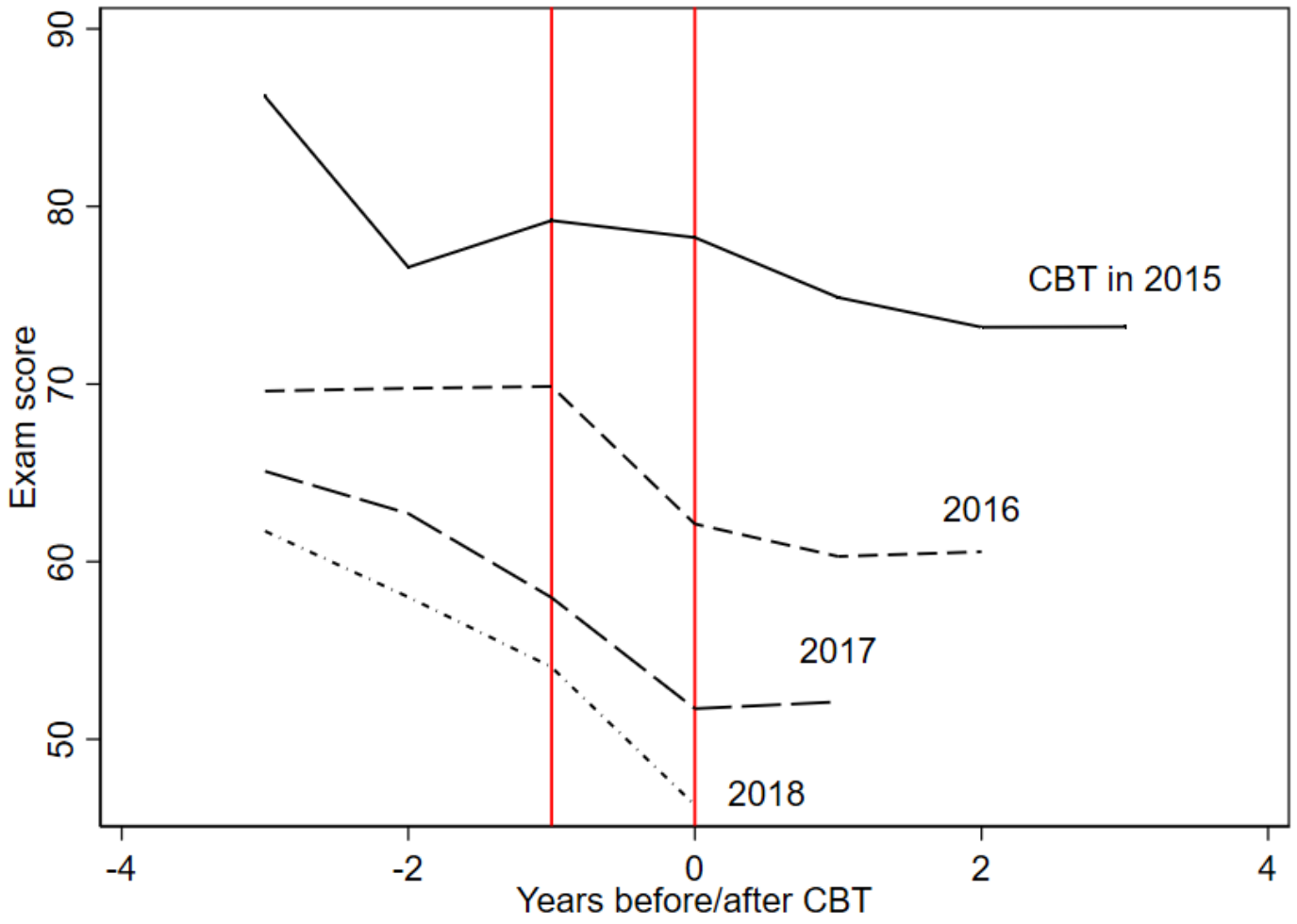
CBT is rolled out over time in junior high schools

- Schools apply to district government with interest in implementing CBT
- District government approves if school meets criteria (access to computers and electricity)

47% using CBT

Schools that implement CBT later have lower scores and larger drop in test scores



We predict grade manipulation using administrative data on all schools

CBT limits cheating

- CBT implemented in phases
- Compare PBT score in previous year with CBT score

The Integrity Score correlates with the drop in exam scores

- Correlate the 2016 integrity score with the drop in scores for 2017 CBT schools

Predict the CBT exam score for PBT schools

- Predict out of sample using integrity score and PBT exam score

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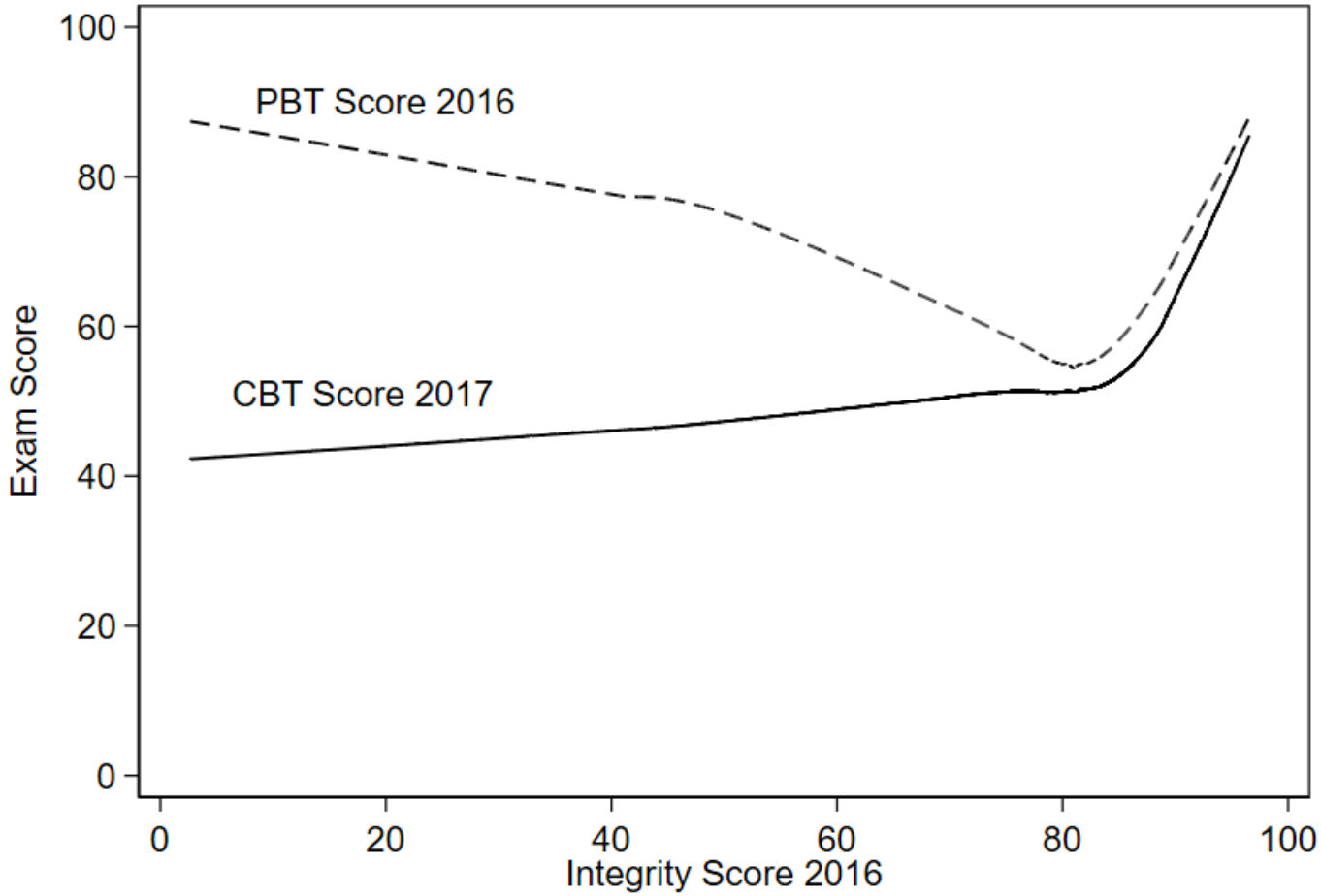
The integrity score correlates with the drop in scores



1) LOWESS fit; 2) Observations are 7,169 schools switched to CBT in 2017

We predict CBT scores for PBT schools

- Schools with higher integrity select into CBT → Cheating might be larger in population

	CBT exam score	
	Coefficient	P-value
PBT exam score	0.200 (0.059)	0.001
Integrity score	-0.045 (0.056)	0.422
Exam * Integrity	0.007 (0.001)	0.000
Constant	12.270 (4.527)	0.007
Mean CBT exam score	51.94	
Province dummies	YES	
R^2	0.71	
Observations	7,169	

Limitations

- School-level data
- Compare across cohorts

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Low integrity schools increase scores with 42%

	Exam on Paper	Exam on Computer	Drop in Scores
All Schools	57.0	48.2	**8.8 (18.3%)**
Low Integrity (Integrity < 70)	68.7	46.1	**22.6 (49.0%)**
High Integrity (Integrity >= 80)	51.9	48.7	**3.2 (6.6%)**

→ **DiD estimator = 22.6 – 3.2 = 19.4 (42.1%)**

Note:

- Computer-based exam scores in 2017 predicted for PBT schools
- 25% of schools had an integrity score below 70, while 53% had an integrity score equal to or above 80

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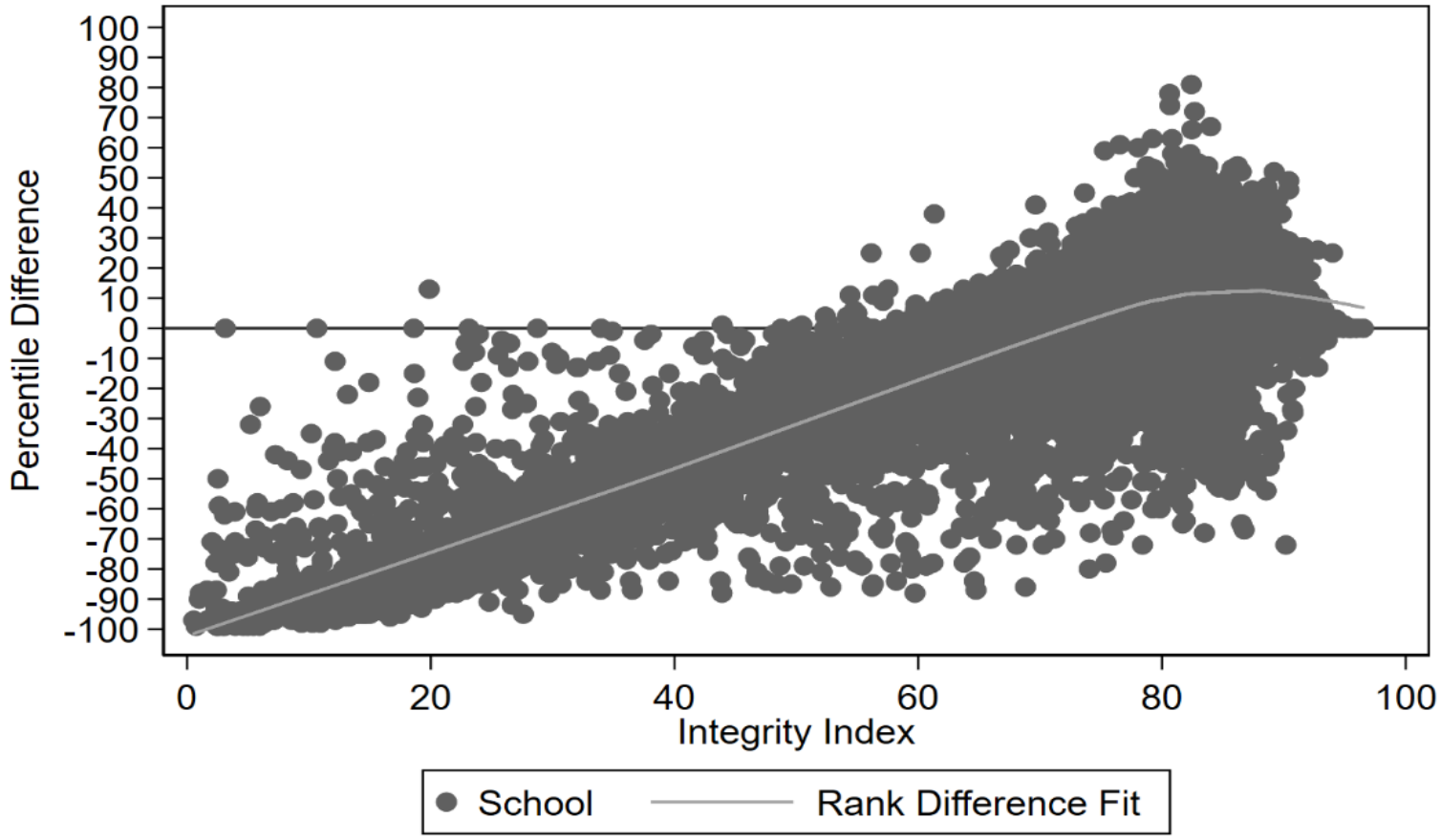
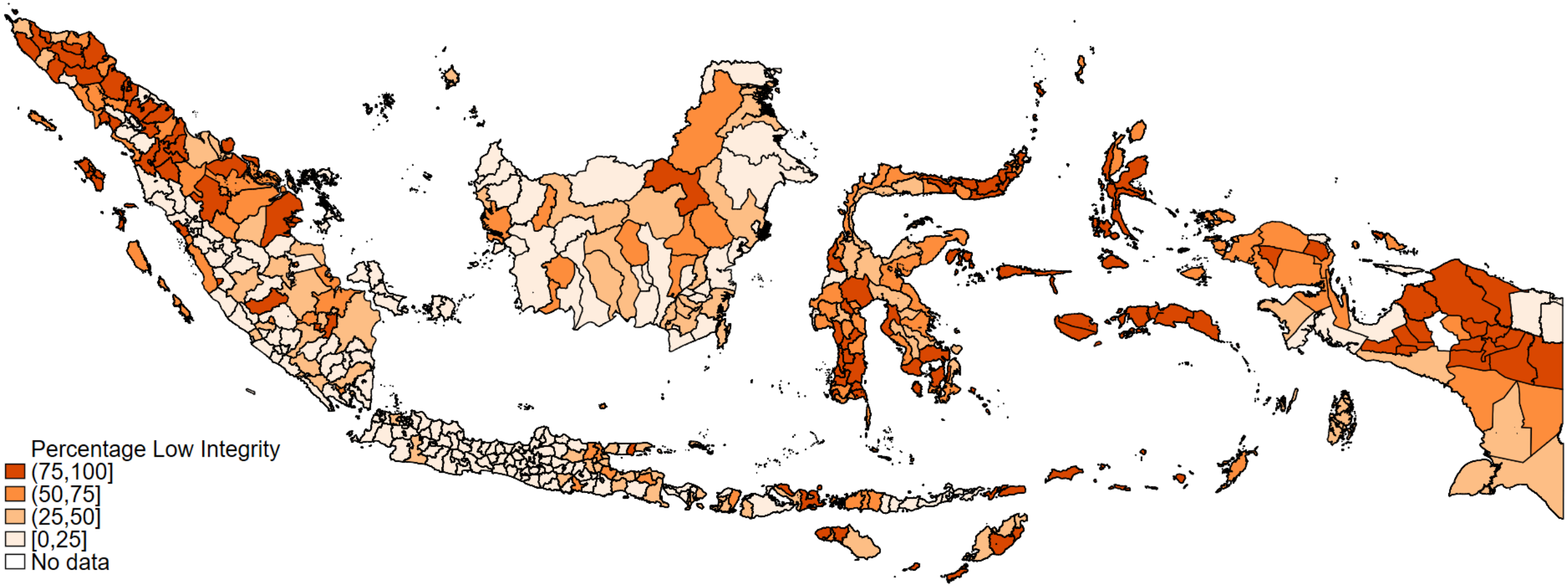
The ranking of schools changed substantially after the correction for cheating



1) Plot using LOWESS smoothing;
2)Figure includes 32,152 Dapodik schools with a non-missing integrity index that did not implement CBT in 2015 or 2016

There was large spatial variation in cheating



School characteristics explain little of the variation

Correlation with the difference between paper and computer score	R^2
District Indicators	0.563
District Indicators + School Characteristics	0.565

- School characteristics considered:
  - Accreditation
  - Public/Private
  - Proportion of teachers with 4-year degree
  - Proportion of civil servant teachers
  - Student-teacher ratio
  - Proportion of classrooms in good condition
  - Internet access
  - Election year
  - Rural/Urban

Conclusion: Cheating was substantial

- **34%** of junior high schools had an integrity score below 70
- Low integrity schools increased exam scores with **42%**

There was more cheating in Indonesia than in Chicago, South Italy and Mexico

- Jacob and Levitt (2003) find cheating practices in 4-5% of elementary school classrooms in Chicago
- Angrist, Battistin and Mezzogiorno (2017) find evidence for score manipulation in 14% of primary school exams in South Italy
- Martinelli et al. (2018) find cheating in 7 percent of exams in their sampled Mexican high schools, which increases to 32 percent after two years on monetary incentives for teachers and students

Cheating at this scale adds to the learning crisis

- The national exam results do not measure learning
- It demotivates students to learn and teachers to teach

→ **Future Research:** Does learning increase after implementation of CBT?

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Thank You

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