

# An Impact Evaluation of Mass Replacement of School Principals in Georgia

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# Motivation

- Education Reform in 2007
  - ▶ All public school principals dismissed (2214 in total)
  - ▶ The hiring process:
    - 1 Candidates registered into administrative counties
    - 2 4-component test and interview
    - 3 Around 5500 candidates selected and sorted
    - 4 Top 20% chose school of preference
    - 5 Bottom 80% assigned by lottery
    - 6 Up to 3 candidates per school
    - 7 Local governance board of each school make final decision
- Nearly half of the schools could not replace principals

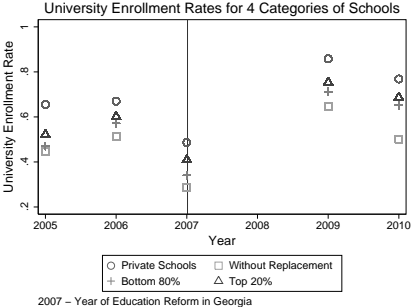
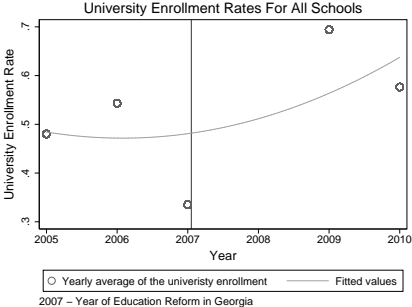
# Motivation

The reform partitioned schools into 4 different groups:

Four groups of schools	Number	Percent
Private Schools (not affected )	247	10%
Public without Replacement	1009	41%
Public with Bottom 80% (Lottery)	590	24%
Public with Top 20%	615	25%
Total	2461	100%

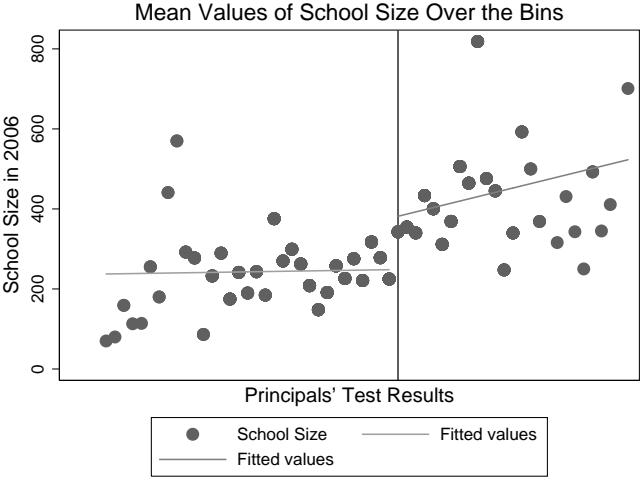
# Motivation

## School level university enrollment rates from 2005 to 2010



# Motivation

## School Size around the Threshold



# Outline

- Research Questions
- Literature
- Data
- Methodology
- Results
- Discussion

# Research Questions

- What is the effect of the policy upon educational performance?
- How does the lottery assignment affect school outcomes?
- What kind of schools do principals, with the option, choose?

# Literature

- Strong association between quality of principal and outcomes of pupils. Bloom et al, 2014
- Difficult to disentangle causal effect of school principals. Branch et al, 2012
- Leaders of schools could have impact through teacher turnover. Branch et al, 2012
- School leaders face non-bureaucratic challenges even after decentralizing policies in developing countries. Oplatka, 2004



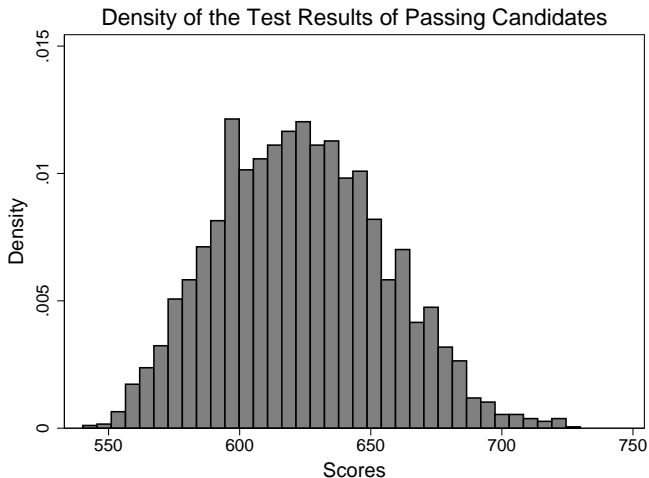
# Data

- School level Panel Data from 2005 to 2010
- NAEC (National Assessment and Examination Center)
  - ▶ University enrollment rate for each school
- MES (Ministry of Education and Science)
  - ▶ School level characteristics: Type, location, size, # of teachers, ratio of socially vulnerable students
  - ▶ Principals: Test results, registration county, school, ID

# Schools in the NAEC data from 2005 to 2010

Schools in Georgia	Year						Total
	2005	2006	2007*	2008	2009	2010	
Private	217	173	198	-	180	204	972
Public w/o Principals Replacement	953	994	804	-	833	953	4537
Public w/ Bottom 80% Principal	226	246	221	-	249	242	1184
Public w/ Top 20% Principal	316	326	295	-	346	341	1624
Total	1712	1739	1518	-	1608	1740	8317

# MES – Candidates Test Results Distribution



# Methodology

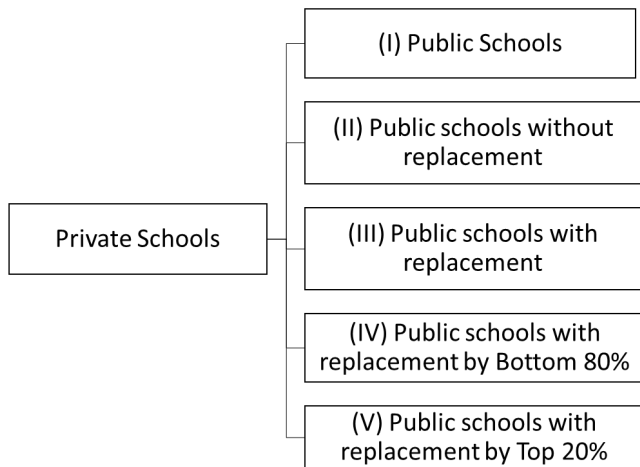
- Difference-in-Differences:

$$y_i = \beta_0 + \beta_1 \text{period}_i + \beta_2 \text{treated}_i + \beta_3 \text{period}_i \times \text{treated}_i + \gamma X + \varepsilon_i$$

- Regression Discontinuity Design:

$$y_i = \alpha + \beta T_i + f(\text{test}_i) + \varepsilon_i$$

# DiD Approach



# DiD Results

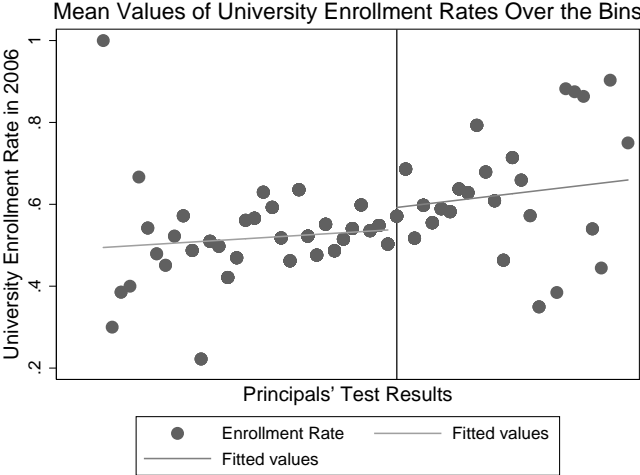
Pairwise comparisons of the private and one of the 5 public school categories	Impact of the Policy	N of Obs. Adj.R-squared
Private vs I (All Public Schools)	-.05** (0.02)	7353 0.39
Private vs II (Public Schools Without the New Principals)	-.06** (0.02)	4767 0.29
Private vs III (Public Schools with the New Principals)	.04* (0.03)	3447 0.29
Private vs IV (Public Schools with Bottom 80% Principals)	.05** (0.02)	2338 0.34
Private vs V (Public Schools with Top 20% Principals)	0.02 (0.02)	1790 0.29

# DiD Results

	Before the Education Policy 2005 2006		After the Education Policy 2009 2010		N of Obs. Adj. R-squared
Private vs I	-0.04 (0.03)	-0.01 (0.02)	-.04** (0.02)	-.05** (0.02)	7353 0.38
Private vs II	-0.03 (0.02)	0 (0.03)	-.04* (0.03)	-.10*** (0.03)	4767 0.37
Private vs III	-0.03 (0.3)	-0.01 (0.02)	0.03 (0.02)	.04** (0.02)	3447 0.38
Private vs IV	-0.01 (0.04)	-0.02 (0.04)	.08* (0.04)	.06* (0.03)	2338 0.47
Private vs V	-0.05 (0.4)	0 (0.04)	-0.02 (0.03)	0.02 (0.03)	1790 0.54

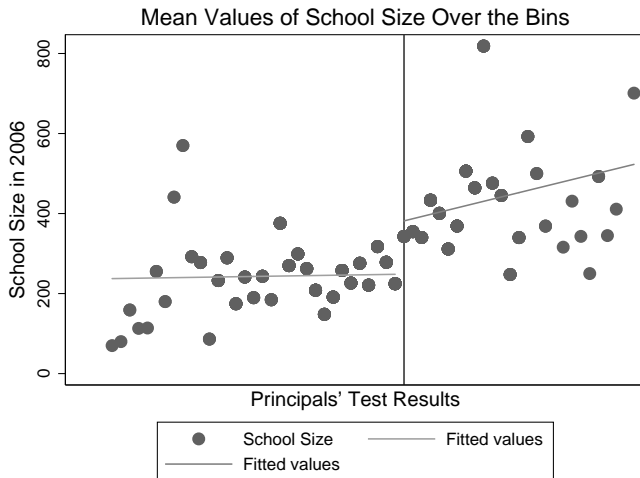
# University Enrollment Rates

For top 20% and bottom 80% schools prior to the reform

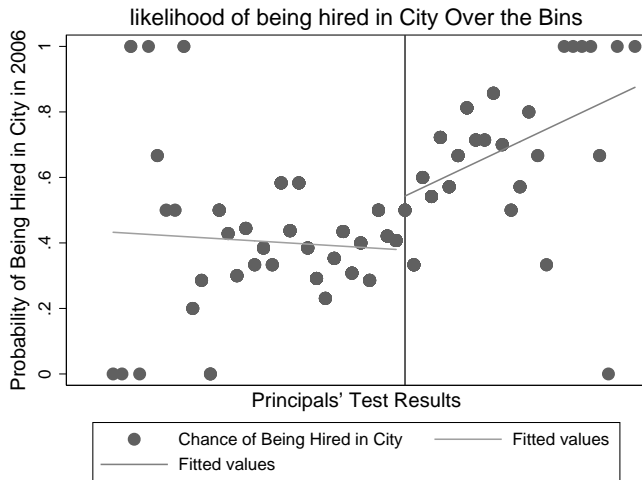




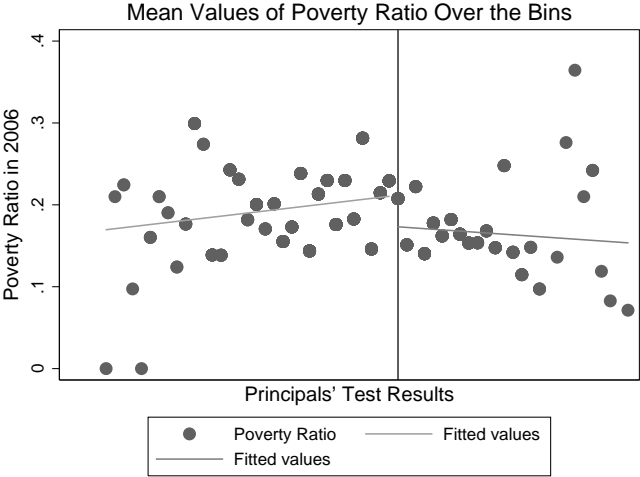
# School size difference prior to the reform



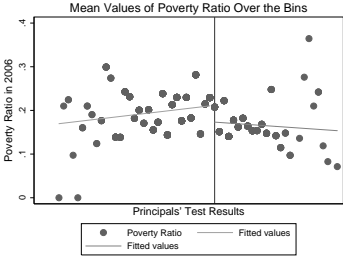
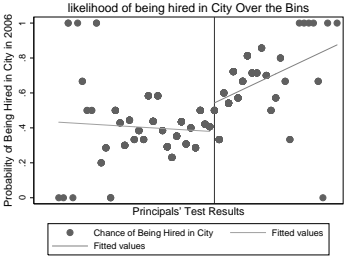
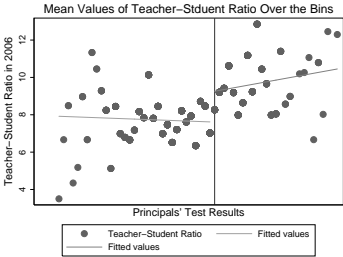
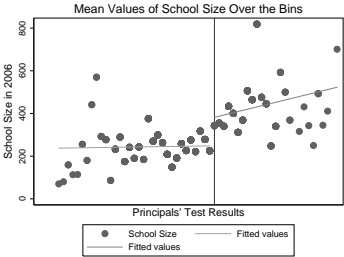
# Likelihood of being hired in cities around threshold prior to the reform



# Poverty Ratio



# RDD Approach



# RDD Results

## Selectivity issues prior to the reform

School Characteristics	Choice versus Lottery	N of Obs. Adj. R-squared
University Enrollment Rate	0.01 (-0.02)	328 0.02
School Size	95*** (-10.9)	328 0.67
Teacher-Student Ratio	1*** -0.13	328 0.49
Poverty Ratio	-.01** (-0.004)	328 0.02
Likelihood of being hired in Cities	.15*** (-0.02)	328 0.72

# Discussion

- Top 20% principals chose schools of already higher quality  
Limited/no further improvement of school's performance
- Top 20% are usually returning principals or existing members of the academic and/or social community of their chosen schools
- Bottom 80% principals (lottery) were free from political ties
  - ▶ Able to implement significant (socially difficult) reform
  - ▶ Had greatest positive impact