Investigating the Role of Human Resources in School Turnaround:
Evidence Using Longitudinal Data from Two States

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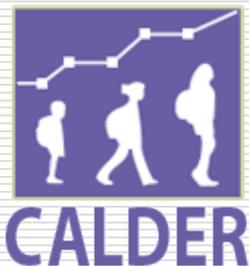
The presumed role of human resources in turnaround
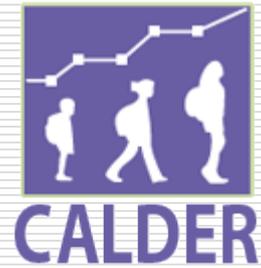
- ☐ Turnaround, transformation models

  - ◼ Prescribe principal and/or teacher turnover

- ☐ Teacher and principal quality are most consequential schooling inputs

  - ◼ Assume teacher/principal quality are static

- ☐ Workforce turnover or human capital development?

Primary Research Question
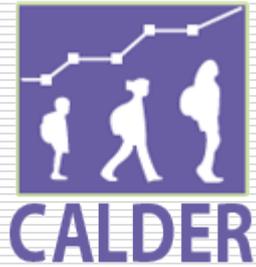
- ☐ Which of the two models dominates in past turnaround schools?

  - For both teachers and principals

- ☐ Study Limitations

  - Descriptive investigation of outlier schools

  - Improvements are absorbed into staff

  - No known intervention efforts; may not predict outcomes of current efforts

Longitudinal Data Sources

Florida	North Carolina
☐ FCAT-SSS	☐ EOG tests
☐ Student-teacher linked	☐ Student-teacher linked
☐ Spans 2002-03 to 2007-08 years	☐ Spans 2002-03 to 2007-08 years
	☐ Principals

Study's Approach to Identifying Performance Changes
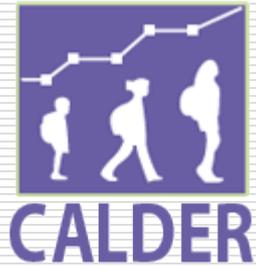
Time Span of Observation Window
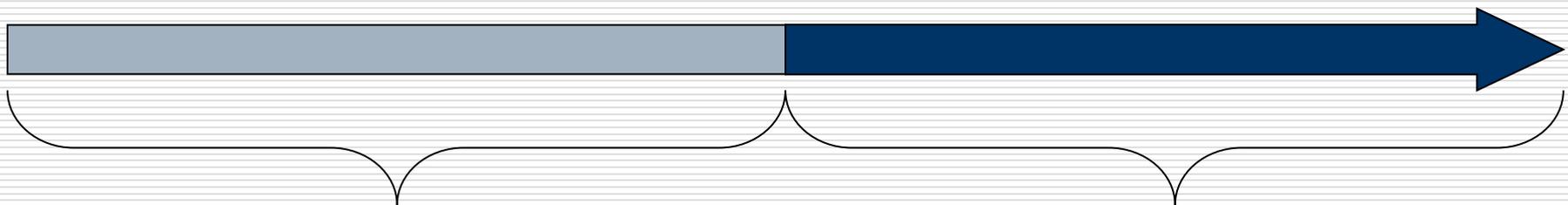
Baseline Period

Monitoring Period

CLPs

TA

MI

NI
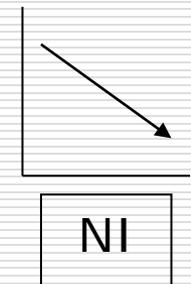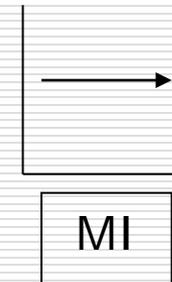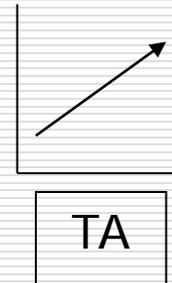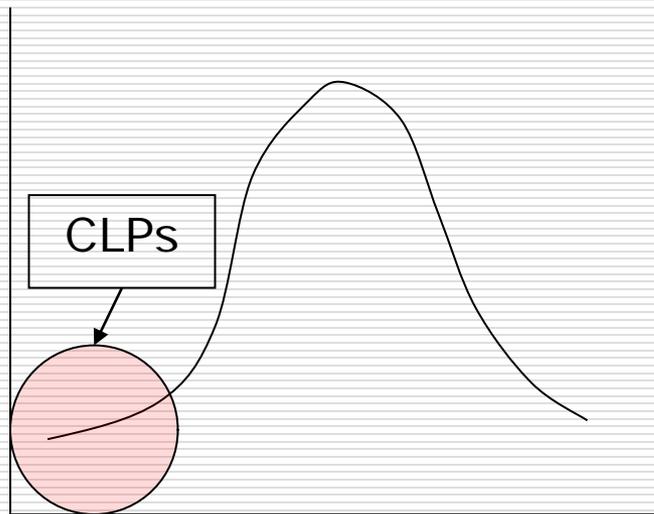
Identifying CLP Schools

☐ Low status (<15th percentile) in one subject to focus on schools with highest-need students

☐ Low growth (<40th percentile) in same subject to ensure identified schools are actually performing below expectations

☐ Established thresholds to hit 5% target by identifying schools as CLP with low status and low growth in BOTH subjects
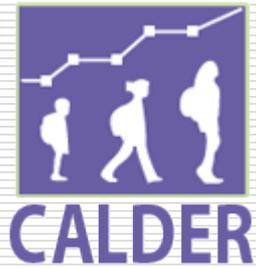
Sample Descriptive Statistics

State	Florida		North Carolina	
School sample	Elementary	Middle	Elementary	Middle
Proportion of students with limited English proficiency	6.5%	3.2%	7.4%	4.3%
Proportion of students ever eligible for free or reduced-price lunch program	88.8%	83.2%	73.8%	69.4%
Mean Student Achievement in Math (standardized)	-0.36	-0.11	-0.45	-0.33
Unique CLP, Non-TA Schools	94	24	66	37
Total student-year observations in CLP, Non-TA schools	45,981	30,584	35,485	33,154
Unique CLP, TA Schools	17	3	8	5
Total student-year observations in CLP, TA schools	9,567	3,998	4,031	4,199
Total student-year observations	55,548	34,582	39,516	37,353

Difference-in-Difference-in-Differences
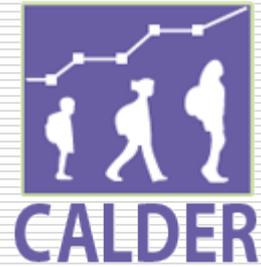
- Pre- vs. post-period

- Turnaround (TA) vs. non-TA

- 3 types of teachers in workforce:
  - Outgoing
  - Stable
  - Incoming

Changes in the Workforce Composition
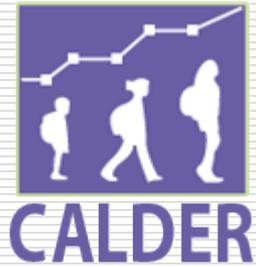
Outgoing

Stable

Incoming

Pre-period

Post-period

Value-added methodology
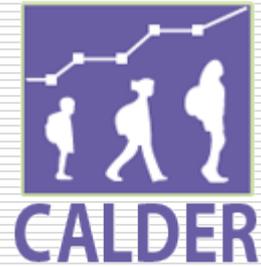
$$A_{ijst} = A_{i,t-1}\beta_1 + X_{it}\beta_2 + \boxed{\tau_{jst}} + \varepsilon_{ijst}$$

Substitute teacher-, school-, and period-level DDD parameters for teacher VA estimate

$$A_{ijst} = A_{i,t-1}\beta_1 + X_{it}\beta_2 + TA_s\beta_3 + POST_t\beta_4$$
$$+ OUTGOING_j\beta_5 + TA_s * POST_t\beta_6 + OUTGOING_j * TA_s\beta_7$$
$$+ INCOMING_j * POST_t\beta_8 + INCOMING_j * TA_s * POST_t\beta_9 + \varepsilon_{ijst}$$

Linking estimates to workforce turnover
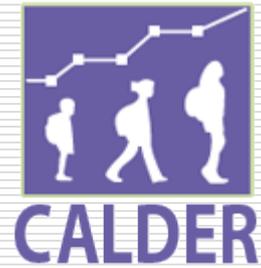
$$A_{ijst} = A_{i,t-1}\beta_1 + X_{it}\beta_2 + TA_s\beta_3 + POST_t\beta_4$$
$$+ OUTGOING_j\beta_5 + TA_s * POST_t\beta_6 + OUTGOING_j * TA_s\beta_7$$
$$+ INCOMING_j * POST_t\beta_8 + INCOMING_j * TA_s * POST_t\beta_9 + \varepsilon_{ijst}$$

By definition: $\quad\quad\quad\quad\quad\quad\quad \beta_6 \text{ or } \beta_9 > 0$

Turnover model: $\quad\quad \beta_6 = 0, \beta_7 < 0 \text{ and } \beta_9 > 0$

Development model: $\quad \beta_6 > 0, \beta_7 = 0 \text{ and } \beta_9 = 0$
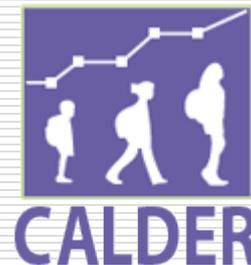
Diff-in-Diff-in-Diff Results

State	Florida				North Carolina			
School sample	Elementary		Middle		Elementary		Middle	
School Random Effects	No	Yes	No	Yes	No	Yes	No	Yes
TA*Post	0.125**	0.126**	0.141**	0.155**	0.153**	0.146**	0.073**	0.067**
	(0.018)	(0.018)	(0.025)	(0.026)	(0.023)	(0.023)	(0.022)	(0.022)
Outgoing*TA	0.009	0.026	-0.037	-0.024	0.027	0.011	0.014	-0.000
	(0.023)	(0.024)	(0.021)	(0.023)	(0.027)	(0.028)	(0.022)	(0.022)
Incoming*TA*Post	0.017	0.032	-0.063*	-0.062*	0.003	0.009	0.051	0.042
	(0.017)	(0.017)	(0.028)	(0.030)	(0.025)	(0.026)	(0.027)	(0.027)
Observations	55,548	55,548	34,582	34,582	39,516	39,516	37,353	37,353
R-squared	0.577	0.576	0.628	0.628	0.641	0.641	0.682	0.682

Diff-in-Diff-in-Diff Results on Principal Effectiveness
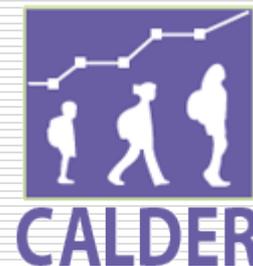
Specification	Specification 1				Specification 2			
School sample	Elementary		Middle		Elementary		Middle	
School Random Effects	No	Yes	No	Yes	No	Yes	No	Yes
TA*Post	0.158**	0.154**	0.074**	0.065**	0.134**	0.138**	0.067**	0.067**
	(0.023)	(0.023)	(0.024)	(0.023)	(0.026)	(0.026)	(0.026)	(0.026)
Outgoing*TA	0.028	0.013	0.016	-0.000	0.042	0.037	0.007	-0.004
	(0.027)	(0.028)	(0.022)	(0.022)	(0.025)	(0.026)	(0.021)	(0.022)
Incoming*TA*Post	-0.003	-0.005	0.039	0.034	0.040	0.033	0.037	0.024
	(0.025)	(0.025)	(0.026)	(0.026)	(0.026)	(0.026)	(0.027)	(0.027)
Observations	39,394	39,394	37,353	37,353	39,394	39,394	37,353	37,353
R-squared	0.640	0.640	0.682	0.682	0.640	0.640	0.682	0.682

*North Carolina CLP schools only.

Further Investigations—PRELIMINARY
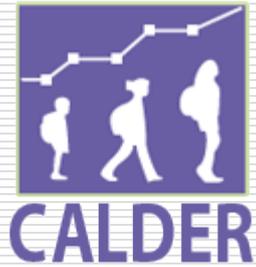
- ☐ What accounts for improvement?
  - ■ Not associated with changes in overall experience, NBC or licensure
  - ■ Investigating absences—sick & admin.

- ☐ Specific to these CLP schools?
  - ■ No, other schools that move from low-growth to high growth in this period show similar patterns

Summary of Findings
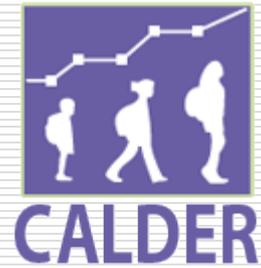
☐ **Results point primarily to development model in past school turnaround**

  ■ Both teachers and principals

☐ **Limited evidence of turnover model**

☐ **Findings are robust across specifications, school types, states**

Policy Implications

- Current policy emphasizes human capital turnover

    - Best use of intervention efforts?

- Feeds into larger debate about teacher quality

    - Can teachers improve?

    - Costs of improvement vs. replacement

    - Individual or context-specific effectiveness