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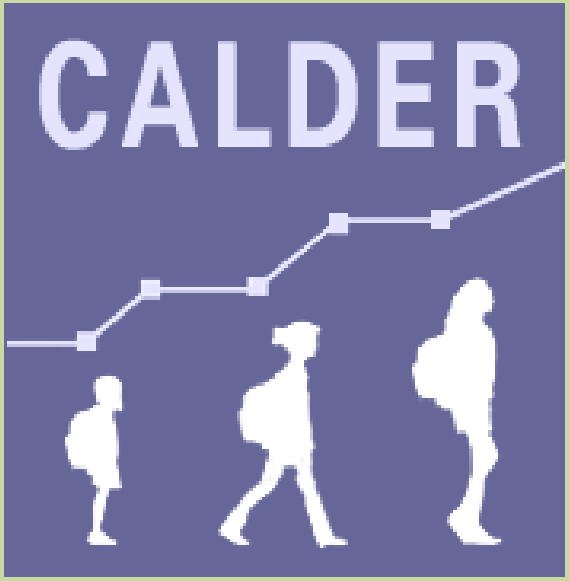

Principal Effectiveness and Leadership in an Era of Accountability: What Research Says

3rd Annual CALDER Conference

December 11, 2009

Estimating Principal Effectiveness

Eric Hanushek, Steven Rivkin,
and Greg Branch

December 2009

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Questions

Is there substantial variation in principal effectiveness?

Does the variation in principal effectiveness differ by the share of low income students in a school?

Are “effective” principals more likely to leave high poverty schools?

How much do changes in teacher quality during tenure account for changes in estimated effectiveness? (not yet completed)

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UTD Texas Schools Project

Stacked panels of students and staff

- Annual student testing
- Student demographic characteristics
- Information on staff

- Follow principals, teachers, and students in Texas public schools

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Distribution of Principals, 1995-2002

	Female	Black	Hispanic	N
1995	52.6%	9.8%	18.0%	3,793
1996	54.2%	10.0%	18.6%	3,864
1997	55.7%	10.0%	18.7%	3,965
1998	57.6%	10.3%	19.2%	4,026
1999	59.1%	10.0%	19.6%	4,083
2000	59.6%	10.2%	20.2%	4,158
2001	60.8%	10.9%	20.4%	4,258
2002	61.5%	11.2%	20.5%	4,331

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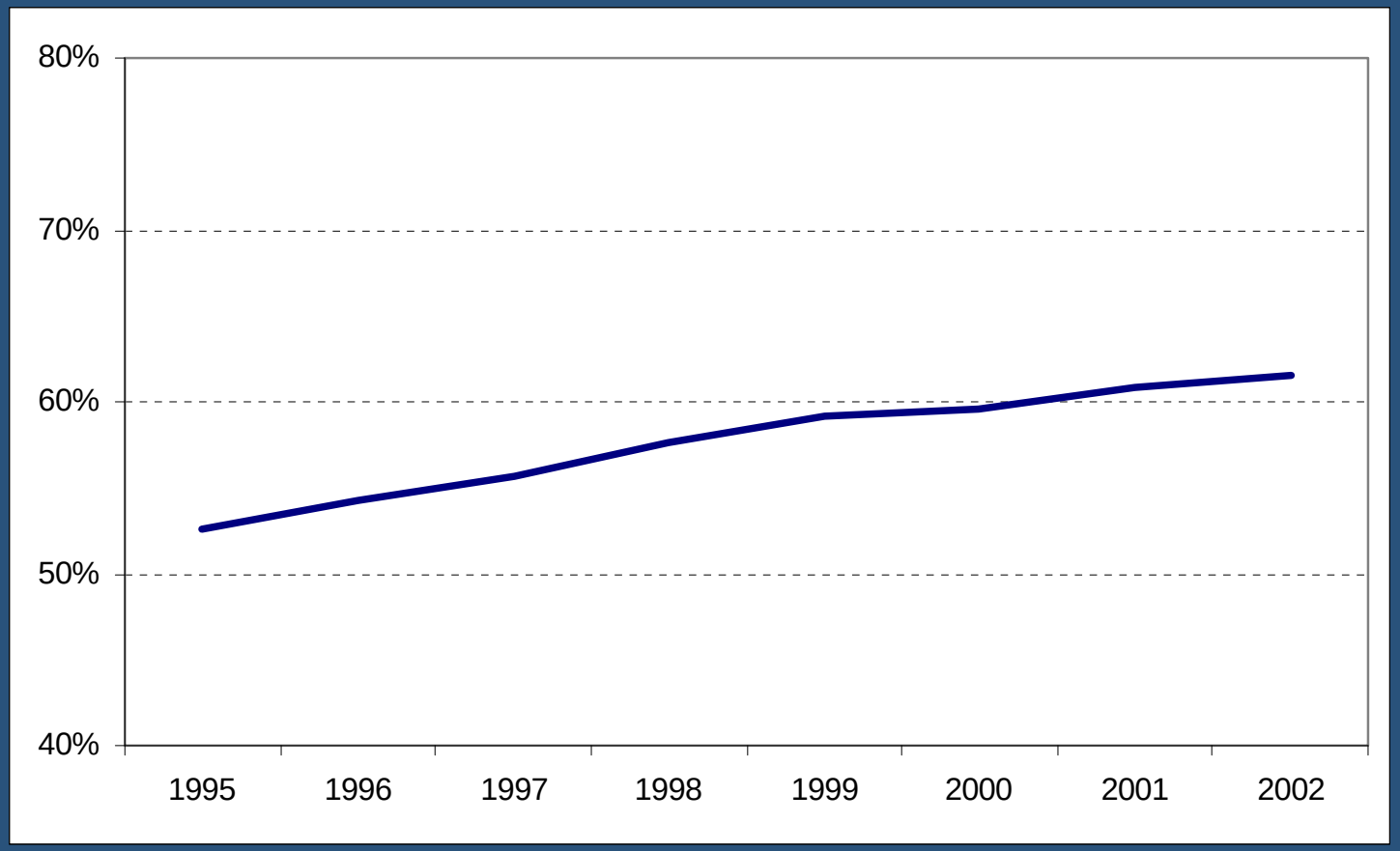
Female Teachers, 1995-2002



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Estimation of Variation in Principal Quality

Non-random selection of principals and students

Control for observed student characteristics and prior achievement

Make principals comparable in terms of tenure

Alternative Value-Added Estimates

Principal Spell Fixed Effects

Regress math score on lagged math score, student demographic variables, *principal-by-spell fixed effects*

Alternative Value-Added Estimates

Principal Spell Fixed Effects

Regress math score on lagged math score, student demographic variables, *principal-by-spell fixed effects*

Principal Spell Time Trends

Regress math score on lagged math score, student demographic variables, principal-by-spell fixed effects, *trend in achievement value added during principal's first three years at a school*

Test Measurement Issues

Random measurement error

- Use Bayesian shrinkage estimator

Basic Skills Tests

- Reweight to allow for initial achievement

Principal by Spell Fixed Effects by Low Income Share

Principal Performance Distribution

Poverty quartile	10th	25th	50th	75th	90th
lowest	-0.18	-0.06	0.03	0.13	0.22
2nd	-0.24	-0.14	-0.03	0.09	0.19
3rd	-0.30	-0.16	-0.04	0.10	0.21
highest	-0.38	-0.24	-0.07	0.11	0.29

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Distribution of Principal Gradient Estimates by Low Income Share

Principal Performance Distribution

Poverty quartile	10th	25th	50th	75th	90th
lowest	-0.10	-0.05	0.00	0.04	0.09
2nd	-0.12	-0.07	-0.01	0.05	0.11
3rd	-0.13	-0.07	-0.01	0.06	0.13
highest	-0.14	-0.07	0.01	0.10	0.19

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Distribution of Re-weighted and Shrunk Principal Gradient Estimates by Low Income Share

Principal Performance Distribution

Poverty quartile	10th	25th	50th	75th	90th
lowest	-0.19	-0.08	-0.01	0.06	0.15
2nd	-0.18	-0.11	-0.02	0.06	0.15
3rd	-0.19	-0.10	-0.02	0.06	0.18
highest	-0.23	-0.11	0.00	0.12	0.28

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Why is variance higher in high poverty schools?

Larger variation in underlying principal skills in high poverty schools

Or

Principal quality differences translate into larger differences in test scores in high poverty schools

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Principal Transitions and Value Added

New role

- Principal
- Other position in school
- Central office administrator

Destination

- same school
- New school-same district
- Central office-same district
- New school-New district
- Central office-new district
- Exit Texas public schools

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Probability Principal Remains in Same Position by Quartile of Estimated Quality and School Poverty Rate (<25 yrs ex)

	Principal Quality			
School Poverty	lowest	2nd	3rd	highest
lowest	77%	71%	65%	67%
2nd	69%	71%	65%	73%
3rd	51%	52%	60%	56%
Highest	**65%**	**60%**	**64%**	**74%**

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Summary

- Purposeful sorting complicates estimates of principal quality and quality of leavers
- Substantial variation in estimates of principal quality (fixed effects and gradients)
  - Higher variance in high poverty schools
  - Not due to test measurement complications
- More effective principals less likely to leave high poverty schools

Remaining Work

Examine interaction of principals and teacher quality

- selection
- nurture

Decompose differences in dispersion by school poverty rate

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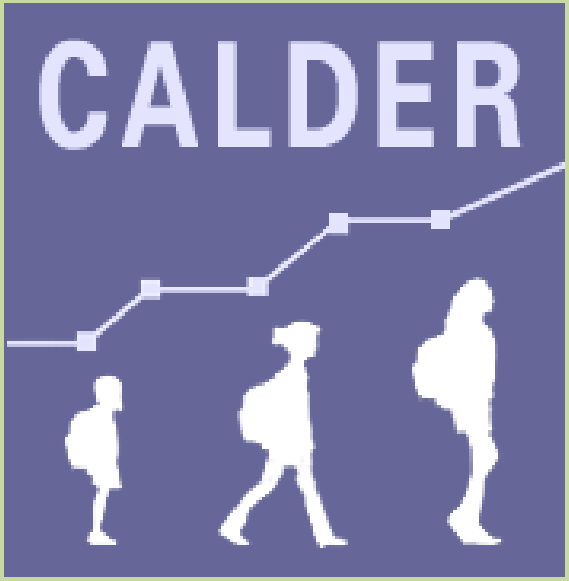

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