

Effective Schools: Managing the Retention, Recruitment and Development of High-quality Teachers

Initial findings from a study of urban schools

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Motivation

- Principals linked to teacher satisfaction and career choices
- Principals central actors in most recent school reforms (accountability, school-based budgeting, charter schools)
- Increased policy attention on attracting and preparing effective school leaders
- Lack understanding of principal qualities to look for when hiring or to target development as well as lack of organized systems for recruiting and developing leaders (in most places)

Our approach: exploratory

1. What do Principals do?

- How do these tasks vary across schools?
 - In particular, what do principals do in schools that are high performing as measured by student test score gains, as well as, teacher and parent assessments of the schools

2. What skills do principals need to do these tasks?

- How do these tasks vary across schools?

3. Given the findings above, explore in more detail the relationship between school leadership and student learning

4. Do principals, like teachers, demonstrate preferences for working in some schools and not in others?

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Data Sources

District Administrative Data (5 years – 2003-04 to 2007-08: ~380,000 students)

- **Students:** F/R Lunch, LEP status, FCAT math & reading scores, race, gender, teacher
- **Staff:** current position, years of experiences, highest degree, race, gender, age
- **Schools:** level, size, racial composition, poverty concentration, performance

Survey Data (2008)

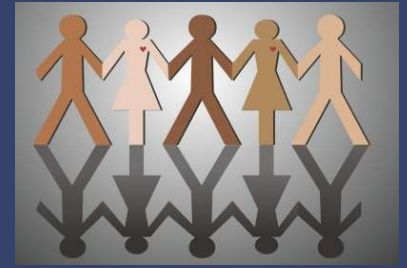
	Response Rate	N
Teachers	83%	15,842
Principals	89%	280
Assistant Prins	85%	585

Observation Data (2008)....

1. What do principals do?

- Developed list of 47 tasks that principals might do based on:
 - Research literature
 - Discussions with principals and
 - Piloting and shadowing in local California schools
- Collected observational time use data
 - Observed each principal for one full day
 - Recorded time use on 47 (later 50) tasks every five minutes
- Sample
 - All high school principals in Miami-Dade County Public schools (plus 6 elementary and 6 middle school principals)
 - All schools serving 6th graders and above in Milwaukee Public Schools
 - All schools in San Francisco
 - Today focus only on Miami-Dade County schools
- Link responses and observations to administrative data (employment, student test scores), other survey data (original and district-collected), and interviews

School Leadership Tasks



Administr.

- Fulfilling compliance requirements
- Managing school schedules
- Managing student discipline
- Managing student services
- Managing student attendance
- Preparing and implementing standardized tests
- Supervising students
- Fulfilling Special Education requirements

Organization Management

- Managing budgets, resources
- Hiring personnel
- Dealing with concerns from teachers
- Managing non-instructional staff
- Networking with other principals
- Managing personal schedule
- Maintaining campus facilities
- Developing and monitoring a safe school environment

Day-to-Day Instruction

- Informally coaching teachers to improve instruction
- Formally evaluating teachers
- Conducting classroom observations
- Implementing required professional development
- Using data to inform instruction
- Teaching students

Instructional Program

- Developing an educational program across the school
- Evaluating curriculum
- Using assessment results for program eval and development
- Planning professional development for teachers
- Planning professional development for prospective principals
- Releasing or counseling out teachers
- Planning or directing supplementary or after school instruction
- Utilizing school meetings

Internal Relations

- Developing relationships with students
- Communicating with parents
- Interacting socially with staff about non-school related topic
- Interacting socially with staff about school-related topic
- Attending school activities
- Counseling staff
- Counseling students and/or parents
- Informally talking to teachers about students, not related to instruction

External Relations

- Working with local community members or organizations
- Fundraising
- Communicating with the district office to obtain resources (initiated by principal)
- Utilizing district office communications (initiated by district)

2. What skills do these reflect?

- Surveyed all principals, assistant principals and teachers
- Asked principals how effective they felt at each of the tasks
- Asked assistant principals how effective their principals were at each task
- Identify groupings of self-assessed task effectiveness reflecting underlying skills
- Link responses and observations to administrative data, other survey data, and interviews to assess the relationship between skills and school outcomes

Principal Task Effectiveness: 5 Primary Dimensions

- Exploratory factor analysis of the 42 items uncovered 5 underlying factors based on standard criteria
- After varimax rotation, we identify these dimensions as:
 1. Instruction Management ($\alpha = 0.90$)
 - Using assessment results, providing instructional feedback, implementing PD
 2. Internal Relations ($\alpha = 0.82$)
 - Handling staff conflicts, counseling students and teachers
 3. Organization Management ($\alpha = 0.83$)
 - Budgeting, hiring personnel
 4. Administration ($\alpha = 0.82$)
 - Maintaining records, fulfilling special ed requirements, managing attendance
 5. External Relations ($\alpha = 0.73$)
 - Communicating with the district office, fundraising, working with the community
- Each principal given score on each dimension (std)

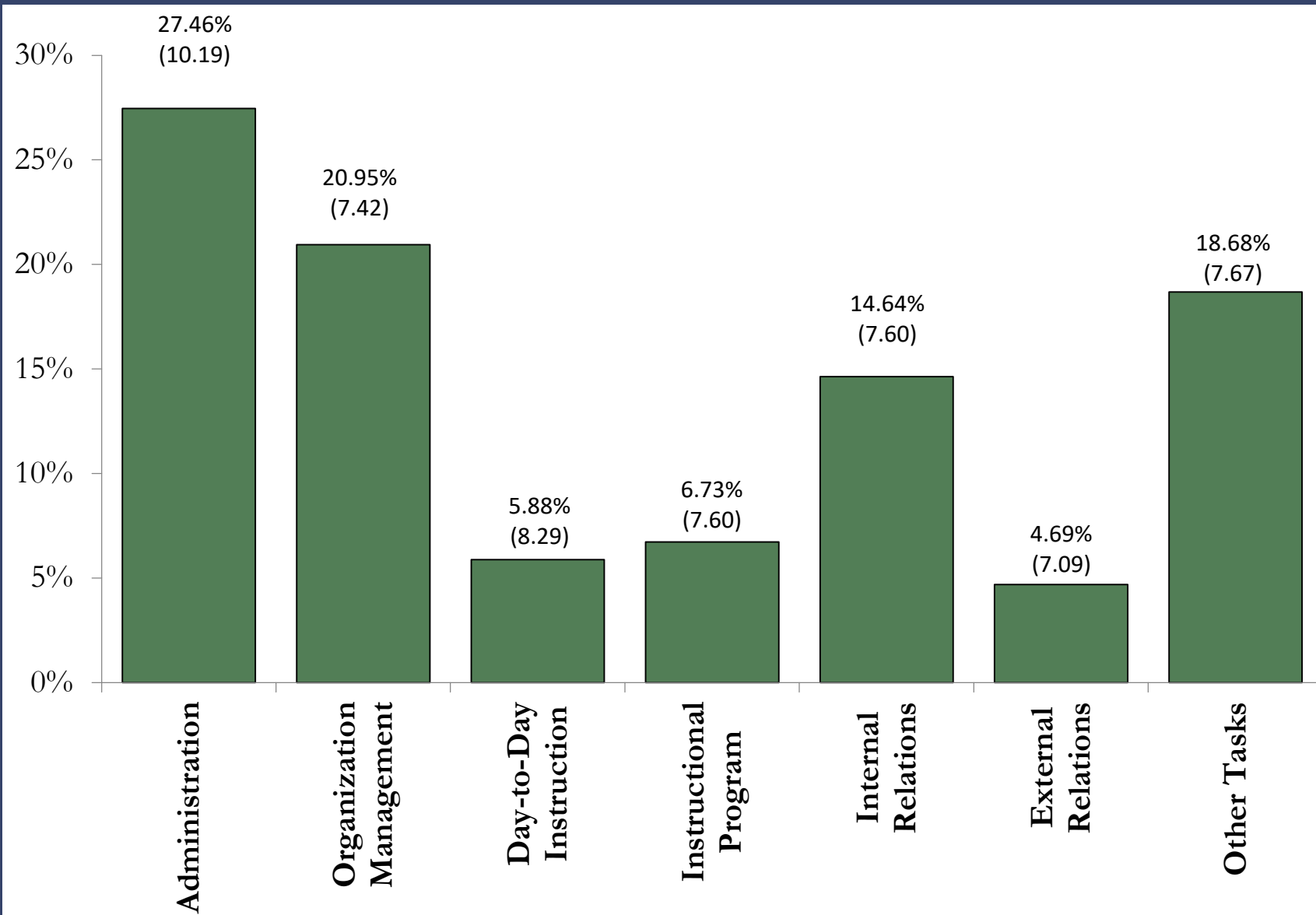
Findings: principal time-use

Most Time Spent On:

- Disciplining students
- Supervising students
- Observing classrooms
- Internal relationships
- Compliance requirements
- Managing budgets

Least Time Spent On:

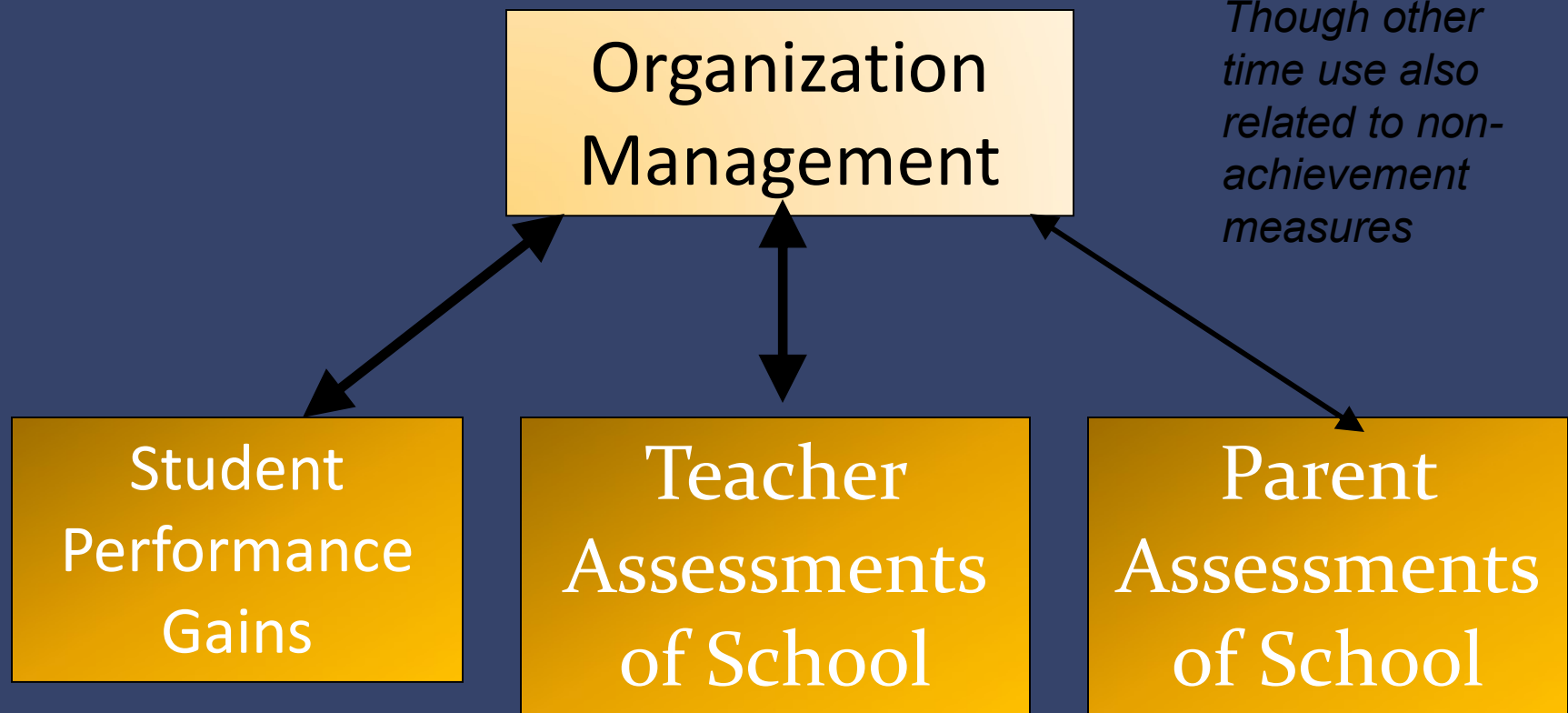
- External relationships
- Coaching teachers
- Using data and assessments
- PD for teachers
- PD for themselves
- Teaching students



No significant differences across schools by school or principal characteristics except less administration for experienced principals

Principal Time-Use and Outcomes

Time-use Relative to Administration



Principal Efficacy and Outcomes

*Confirmed
by AP
evaluations
of principals*

Principals' Organization Management Efficacy

*Other
domains
NOT related
to outcomes.*

- Safe school
- Staff concerns
- **Budgets**
- **Hiring**
- School schedule
- Campus facilities
- Managing staff
- Networking

Teacher
Satisfaction

Student
Gains

Parent
Assessments

Given importance of Org. Manag., explore personnel in more detail

- Hypothesize goals of personnel management
 - recruitment and hiring of effective teachers
 - strategic retention of effective teachers (lower retention of less-effective teachers)
 - teaching supports to increase teacher effectiveness
- Use administrative data that links principals, teachers and students
 - Create measures of teacher effectiveness by comparing the test score increases of each student as he/she moves through classes with different teachers (student fixed-effects)
 - Similarly, create measures of school/principal effects

Research Questions

- Teacher Turnover
 - Are more effective schools more likely to retain more effective teachers and remove less effective ones?
- Teacher Recruitment
 - Are more effective schools more likely to attract more effective teachers for vacant positions?
- Teacher Development
 - Are more effective schools more likely to help their teachers improve over time?

Estimating School/Principal Effects

- Schools' value-added to student achievement is our measure of effectiveness

$$A_{isjt} - A_{isj(t-1)} = \beta X_{it} + \delta_j + Pexp_{jt} + \eta C_t + \mu S_t + \pi_g + \pi_t + \pi_i + \varepsilon_{ijt} \quad (1)$$

- Outcome: Scaled FCAT score (math and reading) of student i in school s with principal j in year t minus the student's test score in the prior year.
 - X_{it} : Time-varying student characteristics (e.g. FRP lunch status)
 - δ_j : Principal fixed effect
 - $Pexp_{jt}$: Principal experience
 - C_t : Current year classroom characteristics (e.g. %minority)
 - S_t : Current year school characteristics (e.g. mean prior scores)
 - π_g, π_t, π_i : Indicators for grades, years, students respectively
- Goal is to capture δ_j
 - Estimate variations of (1) to get alternative measures of δ_j

Turnover: Effective principals more likely to retain effective teachers?

- Multinomial logit model

$$\Pr (Y_i = j | X_i) = \frac{\exp(X_i \beta_j)}{1 + \sum_{j=1}^J \exp(X_i \beta_j)}$$

1 if teacher stays in same school

Yi = 2 if teacher transfers to another school in same school

3 if teacher leaves district

- Model 1: Xi =SE, and vector of teacher, principal and school controls
- Model 2: Xi =SE, SE X TVA, and vector of teacher, principal and school controls

LOGIT FOR LEAVING SCHOOL: OVERALL AVERAGE PVA AND TVA

Math Value Added

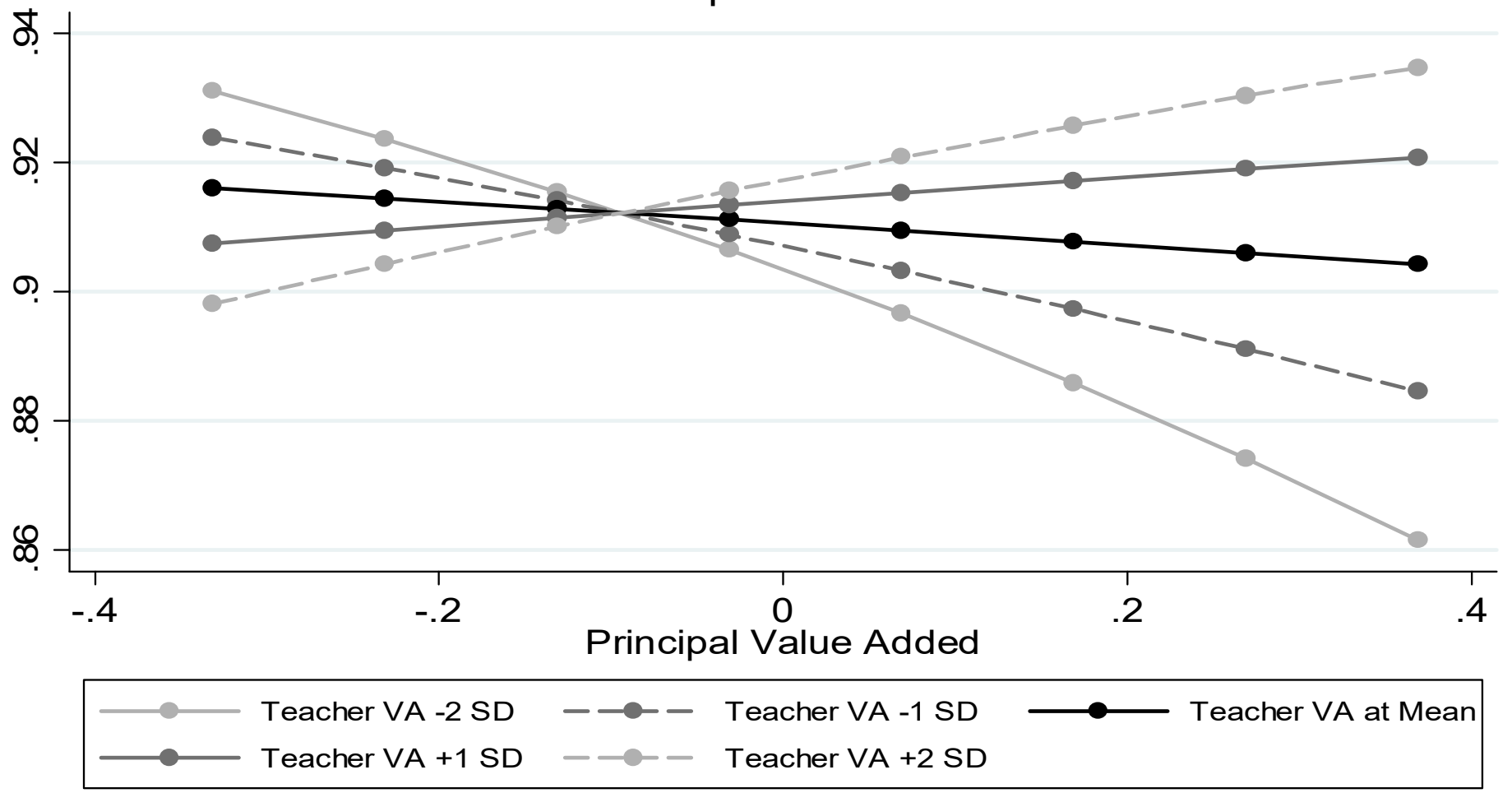
Principal Value Added	0.900	+	0.899	+				
	(-1.724)		(-1.736)					
Teacher Value Added	0.909	***	0.918	***	0.918	***	0.926	**
	(-4.009)		(-3.490)		(-3.586)		(-3.061)	
Principal*Teacher Value Added			0.956				0.956	
			(-1.622)				(-1.564)	
N	18146		18146		17598		17598	

Reading Value Added

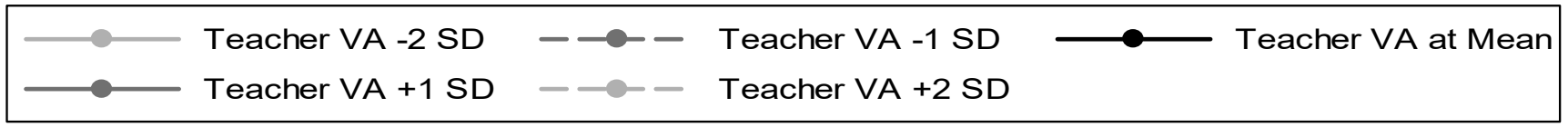
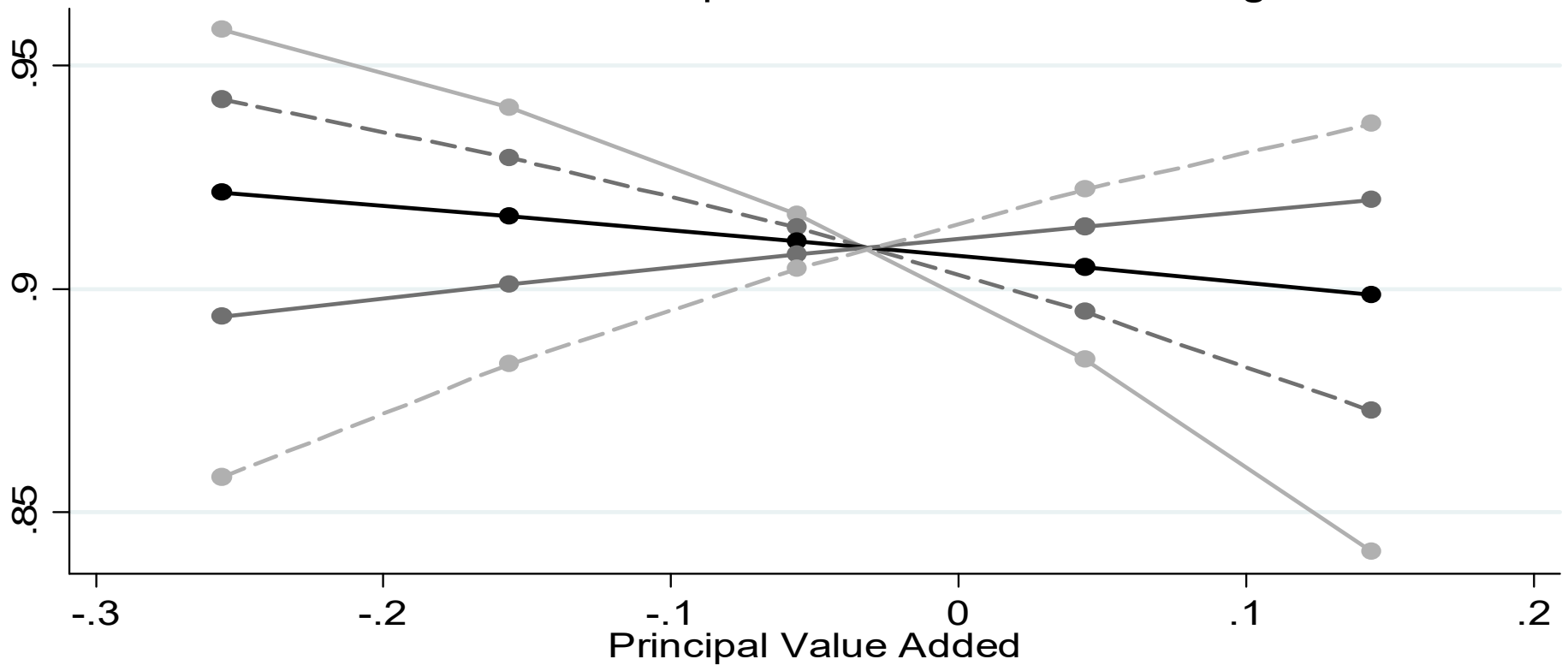
Principal Value-Added in Reading	1.085		1.092					
	(1.472)		(1.585)					
Teacher Value Added	0.972		0.976		0.980		0.982	
	(-1.251)		(-1.060)		(-0.903)		(-0.802)	
Principal*Teacher Value Added			0.914	***			0.922	**
			(-3.575)				(-3.147)	
N	20592		20592		19921		19921	
School Fixed Effect	X		X		---		---	
Principal Fixed Effect	---		---		X		X	
Teacher Characteristics	X		X		X		X	
School Characteristics	---		---		X		X	
Principal Characteristics	X		X		---		---	

Teacher Probability of Staying in Same School

Teacher & Principal Value Added in Math



Teacher Probability of Staying in Same School Teacher & Principal Value Added in Reading



Recruitment: Do high-VA teachers transfer to schools with high-VA principals?

- OLS, restricted to teachers who transfer
 - vector of teacher, current school and principal controls
- We first use the average school effect. This tells us whether high value-added teachers are more likely to transfer to schools led by high value-added principals
- We use a lagged measure of principal VA.
 - If we find a relationship, this would tell us that a principal who is already good is associated with the transfer of high VA teachers
 - We cannot however tell whether high VA teachers seek high VA principals or vice versa

Hiring

	Principal Reading VA				Principal Math VA			
	1		2		1		2	
<i>Overall Average TVA and PVA</i>								
Teacher Value Added	0.216	***	0.139	***	0.152	***	0.087	**
	(0.028)		(0.025)		(0.027)		(0.027)	
N	1542		1542		1340		1340	
<i>Overall Average TVA, Cumulative Average PVA up Through Year Prior to Teacher's Transfer Decision</i>								
Teacher Value Added	0.143	***	0.069	*	0.121	**	0.041	
	(0.029)		(0.028)		(0.038)		(0.040)	
N	1149		1149		982		982	
Teacher Controls	---		X		---		X	
Current School Controls	---		X		---		X	
Current Principal Controls	---		X		---		X	

Development: Does value-added of teachers change more when in a school with a high value-added principal?

- OLS, teachers in 2006 and 2007

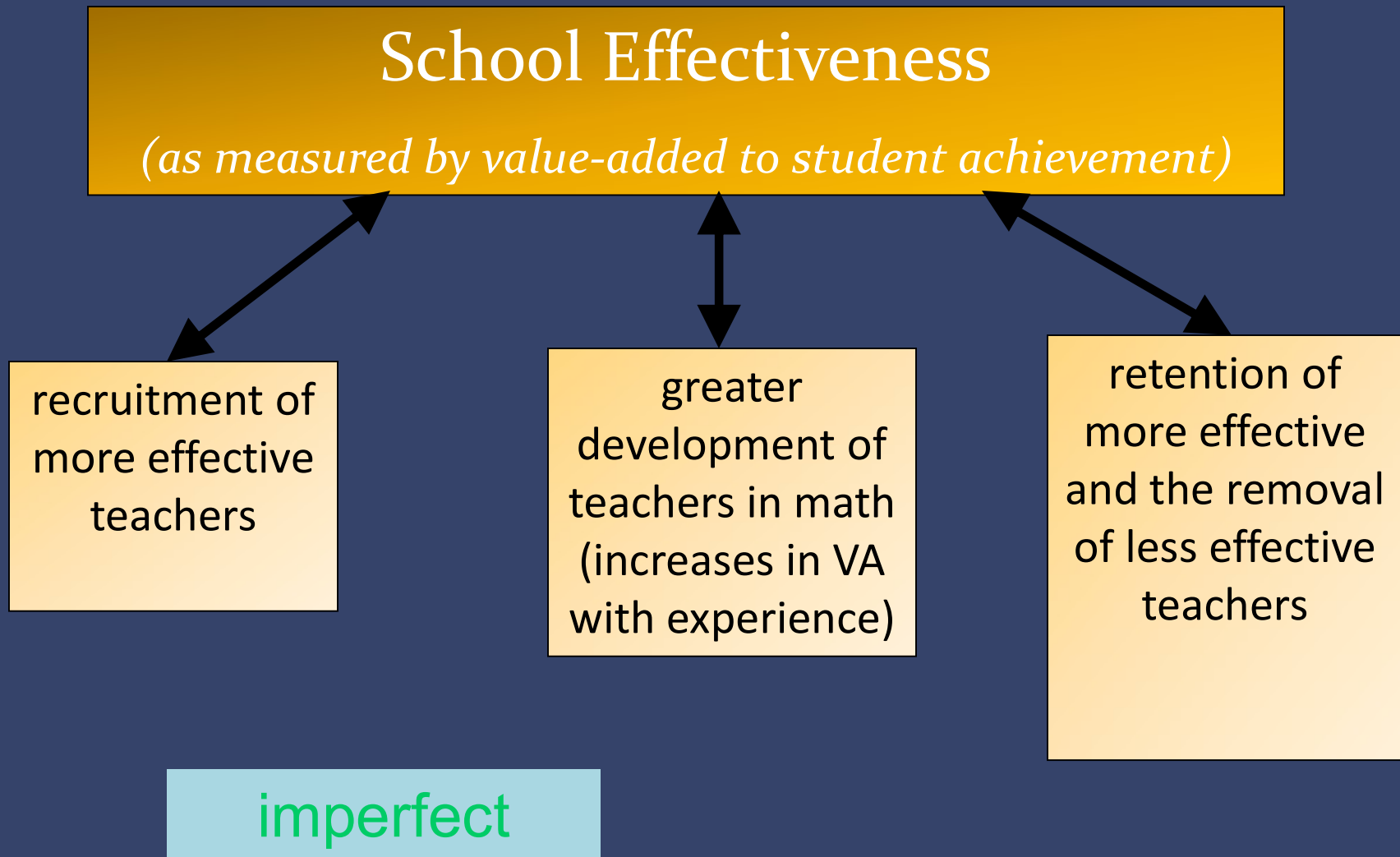
$$TVA_t = \alpha + \beta TVA_{t-1} + \gamma SE_{t-2} + \kappa X + \varepsilon$$

- X includes school year and dummies for teacher experience top-coded at 20 years
- SE reflects the **value-added of the principal** with whom the teacher is **today**. However, we use a **lagged average** value for the SE to avoid circularity

TVA Gains – math only

	Math		Reading	
All Teachers, Regardless of Transfer				
<i>All Teachers</i>				
Teacher Value-Added in Prior Year	-0.050 (0.027)	+	0.139 (0.056)	*
Principal Value Added	0.127 (0.026)	***	-0.025 (0.033)	
N (Observations)	1843		1944	
<i>New Teachers (3yrs or less exp)</i>				
Teacher Value-Added in Prior Year	-0.128 (0.040)	**	0.029 (0.052)	
Principal Value Added	0.119 (0.043)	**	-0.035 (0.040)	
N (Observations)	517		548	

Summary



Conclusion

- Schools with high value-added show beneficial personnel dynamics
- No conclusive evidence of a principal effect since our measure of principal effectiveness is not perfect
- BUT, our analysis suggests that these superior personnel decisions happen during the tenure of specific principals in those schools
- Consistent with the general literature on organization management

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