Using Compensation to Recruit, Reward, and Retain Effective Teachers

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Discussion Questions

- Why teacher compensation reform?

- How do existing strands of empirical research inform teacher compensation reform movement?

- What are theoretical arguments for and against teacher compensation reform?

- What can we deduce from studies that have evaluated teacher compensation reform policies?

- Is teacher compensation reform another fad or sound policy?

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Why teacher compensation reform?

- Teachers are the single most important determinant of students' experiences and outcomes of schooling (Goldhaber, 2002).

- Top-performing teachers are capable of producing threefold the achievement growth in students when compared to low-performing teachers (Hanushek, 1992).

- A string of five above-average teachers can overcome the deficit typically reported between economically disadvantaged and higher income students (Rivkin et al, 2002).

- Most needy students generally end up being taught by least-qualified teachers (Lankford et al, 2002; Loeb, 2000).

Why teacher compensation reform?

- High ability teachers are more likely to leave teaching than low ability teachers where ability is defined by a teacher's performance on the ACT or National Teacher Exam (Podgursky et al, 2004; Murnane and Olson, 1990).

- Teachers tend to be from less-selective undergraduate institutions, have lower standardized test scores (Ballou, 1996; Goldhaber and Liu, 2003).

- Pay compression within the education system accelerates the exit of higher ability teachers (Hoxby and Leigh, 2004).

How do existing strands of empirical research inform teacher compensation reform movement?

- Easily measured teacher characteristics used to determine a teacher's employment eligibility and compensation do not provide a strong signal of teacher effectiveness.

- Negligible differences between certified, uncertified and alternatively certified teachers as well as wide variation in teaching effectiveness within each certified group.

- Public concern over student performance on state accountability tests and international comparisons. There is a need to improve administrator and teacher productivity.

- Other reforms have not necessarily produced desired schooling outcomes.
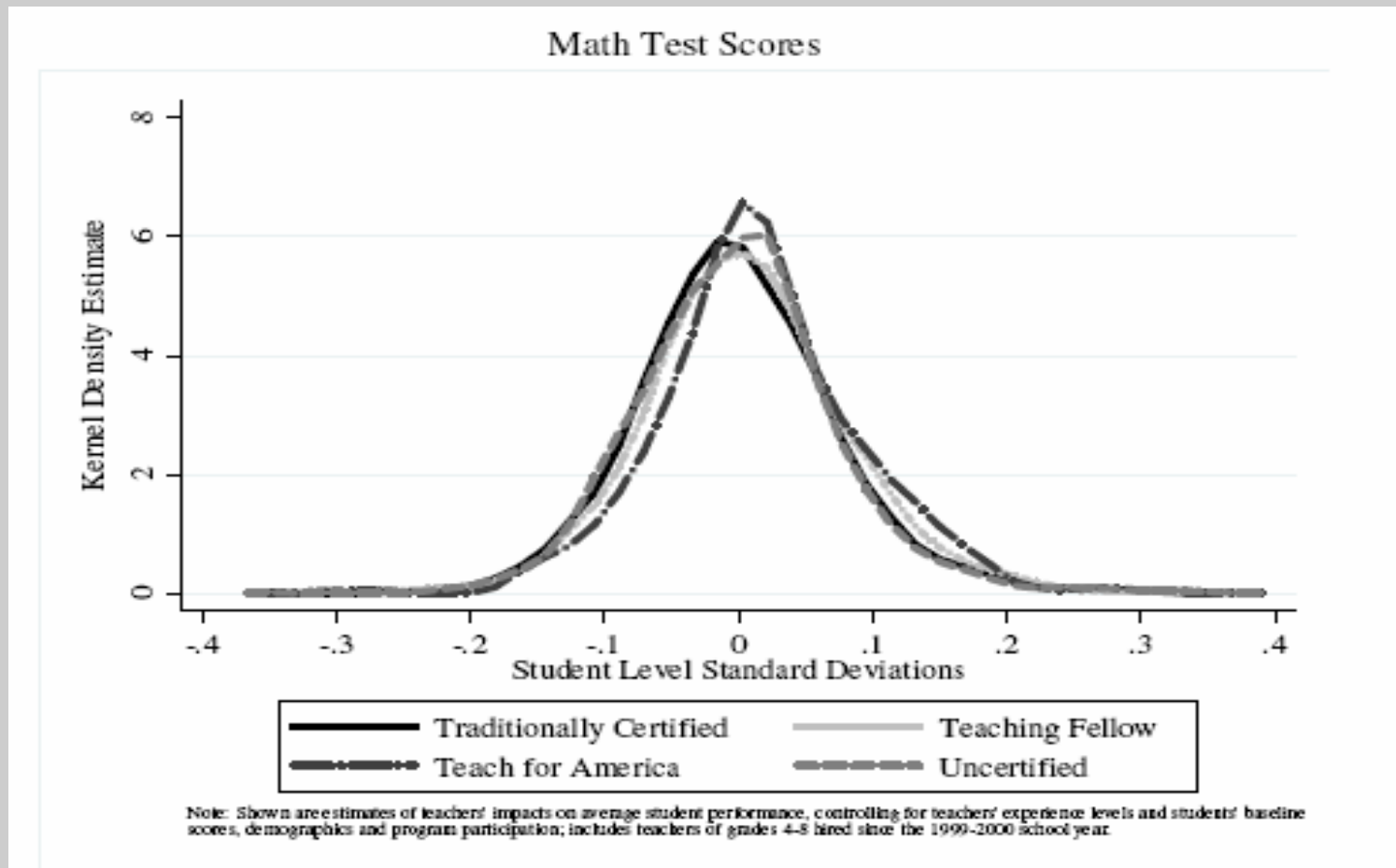
What do we know about teacher quality?

41%
40%
19%
3%
97%
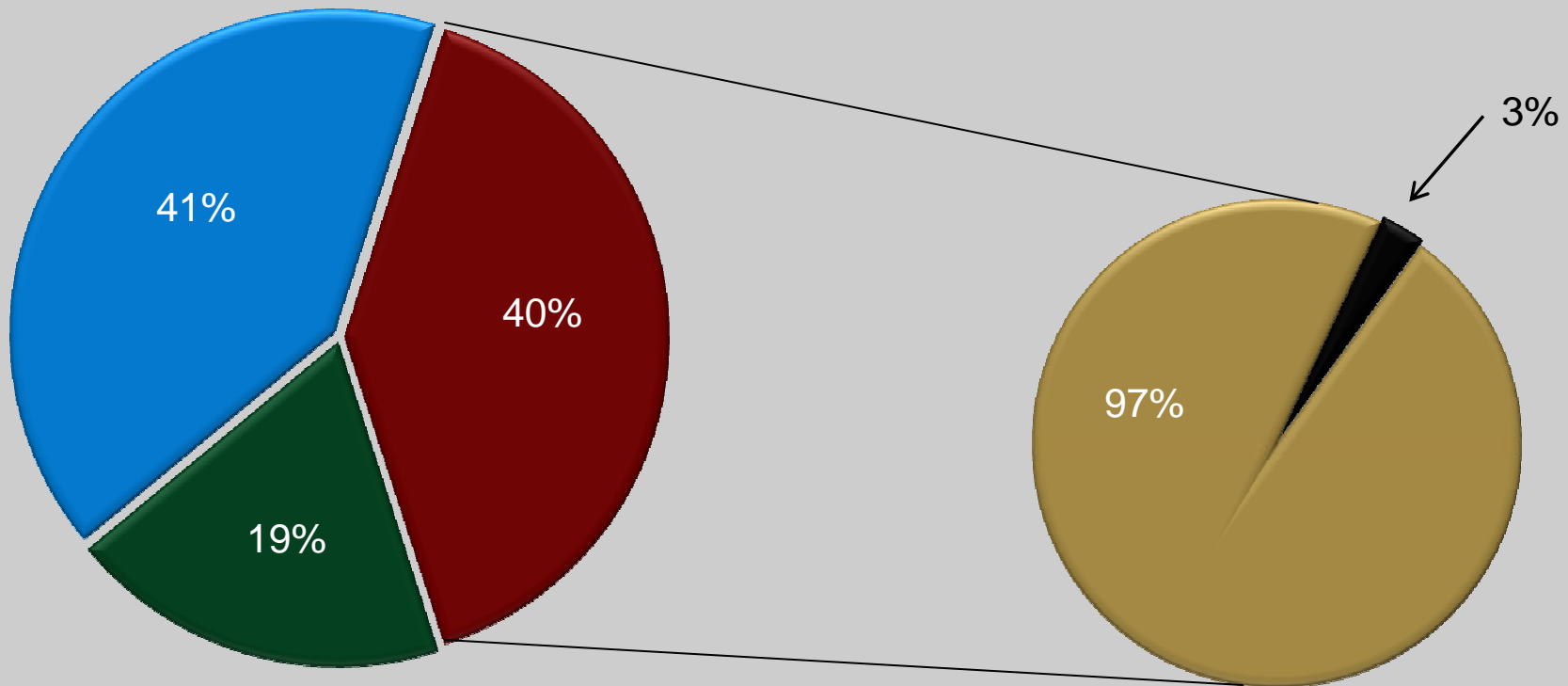
Teacher-Level Variables
Classroom-Level Variables
School-Level Variables

Less Tangible Aspects
Easily Measurable Aspects

Source: Goldhaber, D. (2007). Thoughts on Teacher Pay Reform. Washington, DC: National Comprehensive Center on Teacher Quality.

Variation in teacher effectiveness within and between groups of teachers

Math Test Scores

Note: Shown are estimates of teachers' impacts on average student performance, controlling for teachers' experience levels and students' baseline scores, demographics and program participation; includes teachers of grades 4-8 hired since the 1999-2000 school year.

Source: Kane, T.J., Rockoff, J.E., and Staiger, D.O. (2006). What Does Certification Tell Us About Teacher Effectiveness? Evidence from New York City.

Performance Monitoring – difficulty in monitoring and assessing teacher performance.

Teacher performance is difficult to monitor because output is not readily measured in a reliable, valid, and fair manner.

States and districts are developing massive longitudinal student-level databases that permit more precise estimation of value-added contributions at the building-, grade- and teacher-level.

Team Production – teachers work as members of a team.

Introducing rewards at the individual teacher level might reduce incentives for teachers to cooperate and, as a consequence, reduce rather than increase school performance.

Performance-related pay programs can reward groups of teachers and do not necessarily have to use a fixed-tournament bonus scheme.

The Multitasking Problem – the performance of a teacher has multiple dimensions, only some of which are measured and incentivized.

When there is a structural misalignment between an organization's overall mission and the activity to which incentives are attached, not surprisingly, employees tend to shift work toward the metered, rewarded activity, and way from other important activities.

Pay for performance plan should use multiple indicators of performance in combination with careful monitoring of system-gaming and/or other opportunistic behaviors.

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Payment for Input and Payment for Output

Informational deficiencies in the hiring process are ameliorated in most profession by subsequent employee performance assessments, and as pay raises become more closely tied to actual productivity, thereby lessening dependence on input-based indicators for employees.

A performance-related pay program will tend to attract and retain individuals who are particularly good at the activity to which incentives are attached, and repel those who are not.

Project on Incentives in Teaching (POINT) Experiment

- Nation's first true teacher pay for performance experiment.

- 296 middle school math teachers voluntarily participating, roughly ½ control group and ½ treatment group.

- Treatment group teachers are eligible for monetary bonuses ranging from $5,000 to $15,000 per year.

- Bonuses are based on average student achievement gains in math as measured by TCAP.

POINT and Performance Monitoring – difficulty in monitoring and assessing teacher performance.

Unique school, teacher, and student identifier.

Test score information for math, science, social studies, and ELA.

Test score information from other district assessments as well as formative assessment data.

POINT and Team Production – not a fixed-tournament.

Teachers are judged against a standard based on past performance of Nashville teachers.

Standard was determined at beginning of experiment and will remain fixed for all three years.

Teachers have the opportunity to improve and, in principle, all could end up exceeding this standard.

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POINT and the Multitasking Problem –

$$\text{Bonus} = \$5000 \times (I_{M1} + I_{M2} + I_{M3}) \times [1 - P_E D_E - P_S D_S - P_{SS} D_{SS}]$$

If we let, I_{m1}, I_{m2}, I_{m3}, denote indicators for making the math targets for the $5,000, $10,000, and $15,000 bonuses.

P_k = # of students in subject k/# of students, k = math (M), English (E), science (S), and social studies (SS).

D_k = 1 if fails to make target in k = English, science, or social studies.

Hypothetical

$$\text{Bonus} = \$5000 \times (I_{M1} + I_{M2} + I_{M3}) \times [1 - P_E D_E - P_S D_S - P_{SS} D_{SS}]$$

Made all math targets.

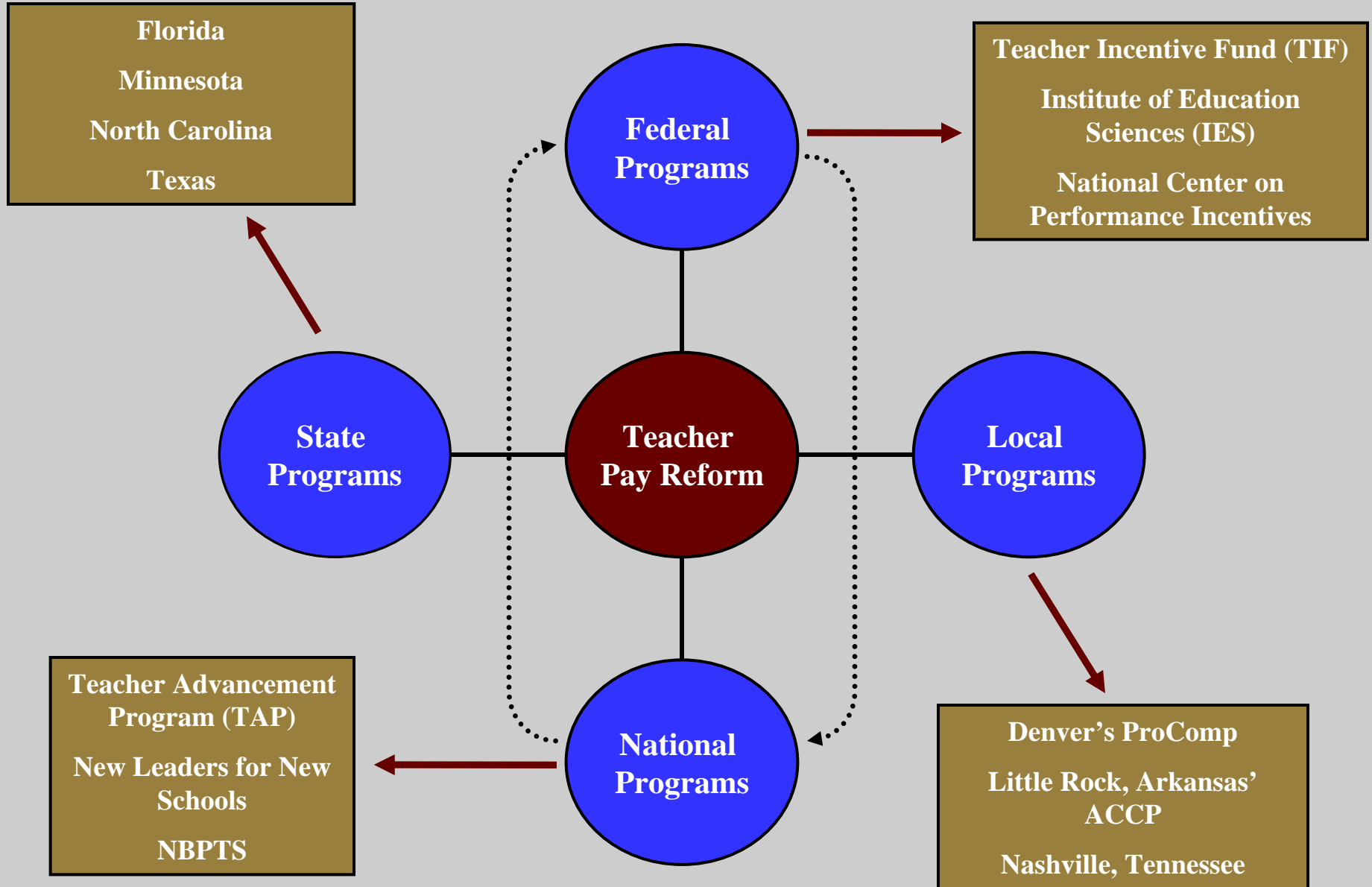Failed to make English target and 1/5 of his teaching load is English

Does not teach social studies or science.

$$= \$5,000 \text{ x } (3) \text{ x } [\ 1 - .20 - 0 - 0\ ] = \$15,000 \text{ x } .8 = \$12,000$$

Policy initiatives to improve teacher quality through certification and licensure

- Teacher competency testing.
  - 48 states adopted minimum competency testing policy in 11 year period (1975 – 1986).

- Alternative certification.
  - 38 states adopted alternative certification policy in 19 year period (1983 – 2002).

- National Board certification.
  - 35 states adopted monetary reward policy for NB certification in 12 year period (1994 – 2006).

Source: Langevin, W.E. and Springer, M.G. (2007). The Political Economy of Teacher Certification and Compensation. Paper prepared for the Annual Meeting of the Midwestern Political Science Association.

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Quantitative studies of the causal effect of teacher incentives programs on measures of student achievement

- Evaluation literature is small.

- Studies conducted to date are generally positive and provide a strong case for further policy experimentation in this area by states and districts combined with rigorous evaluation.

- Not sufficiently robust to prescribe how systems should be designed (e.g., optimal size of bonuses, mix of individual versus group incentives).

Conclusion

- Theory can introduce a helpful set of arguments for consideration, but it provides only a limited base of knowledge about teacher compensation reform.

- Educational researchers and policymakers must turn to field experimentation and independent appraisal to determine whether teacher compensation policy reforms constitute an effective innovation.

- What we know is that existing teacher remuneration policy is ineffective. We do not know what should replace present pay system.