A Test of Merit Pay in Teaching

The debate over the feasibility of implementing merit pay for teachers may benefit from the findings of a recent study by two economists (Dee & Keys). They concluded the following:

1. “…there has been relatively little direct empirical evidence on whether merit-pay plans have been successful in targeting rewards to effective teachers…by examining data from Tennessee’s Project STAR class-size experiment and the contemporaneous Career Ladder Evaluation System…results suggest that this career-ladder system was at least partially successful at rewarding teachers who were relatively effective at promoting student achievement…” [p.486]

2. “Specifically,…assignment to a teacher who had been certified by the career-ladder evaluations led to large and statistically significant increases in mathematics scores (roughly 3 percentile points). However, these gains in mathematics scores appear to have been somewhat concentrated among teachers who were on the lower rungs of the career ladder. In contrast, only assignment to a teacher who had reached the top of the career ladder led to statistically significant gains in reading achievement…”[p.486]

3. “The implications of these results for the desirability of other merit-pay programs are decidedly mixed. The qualified success of Tennessee’s program clearly suggest the possibility that teacher quality can be reliably rewarded when there is a well-designed evaluation system…However, the evidence that teachers on higher rungs of the career ladder were not uniformly better also underscores the considerable challenge of designing a system of teacher compensation that rewards quality in a fair and equitable manner…” [p. 486]

In terms of methodology, the study defined achievement outcomes as “student scores from grade-specific Stanford Achievement Tests in math and reading.” It pooled students in four grades to obtain about 24 thousand observations. “…Random within-school pairing of students with teachers implies that this experiment offers a unique and unintended opportunity to assess the relative quality of teachers who had been certified by the Career Ladder Evaluation System…” [p.478] The study used a complex econometric model to account for many of the biases that have traditionally limited analyses of the teacher performance-student achievement link. The researchers note that their analysis does not account for any collective effects of the merit-pay program (which may theoretically add or detract from overall results).

Thomas S. Dee (assistant professor, Dept. of Economics, Swarthmore College) and Benjamin J. Keys (graduate student, Dept. of Economics, University of Michigan) document their work with the article, “Does Merit Pay Reward Good Teachers? Evidence from a Randomized Experiment,” which interested parties may find in the peer-reviewed Journal of Policy Analysis and Management (Volume 23, No.3, Summer 2004, pp. 471-488). The article demonstrates (a) the operational difficulty to expect in any teacher merit pay program that offers equitable processes and (b) how analysts can exploit the rich data from two separate educational programs.

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[Abstract by Willard Hom, Director, Research & Planning, System Office, California Community Colleges, 7/19/04]