

PERFORMANCE PAY

THE RESEARCH

AUSTRALIAN EDUCATION UNION
Victorian Branch submission
June 2012



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The following summary of recent research into performance pay schemes identifies the key findings from each study regarding their impact on student achievement and teacher-related issues. The summary contains a combination of individual location studies and more general reviews of the whole area of performance pay.

Rand Corporation Studies of Three Pay for Performance Schemes

Pilot performance pay programs have been implemented in several districts across the United States, and RAND researchers have had a role in evaluating three of them: a Schoolwide Performance Bonus Program (SPBP) in New York City; the Project on Incentives in Teaching (POINT) in the Metropolitan Nashville School System; and the Round Rock Pilot Project on Team Incentives in the Round Rock Independent School District in Texas.

“The three experiments took different approaches to pay for performance, focusing on individual teacher, team-level, and whole school performance. What RAND has learned is that paying teachers to improve student performance did not lead to increases in student achievement and did not change what teachers did in their classrooms relative to the control groups in any of the three experiments.”

<http://www.rand.org/congress/newsletters/education/2012/06.html>

1. Nashville Study

In September 2010 the most complete and rigorous study of teacher performance pay in the United States was released by the National Center on Performance Incentives at Nashville's Vanderbilt University in conjunction with the Rand Corporation. It was funded by the US Department of Education.

The researchers analysed the effect on student achievement of performance bonuses paid to Years 5-8 mathematics teachers teaching in Nashville public schools in the period 2007-09. The teachers were divided into two groups. In the first group individual teachers could earn up to \$15,000 per year in performance bonuses. In the second 'control group' teachers taught the same courses and similar students but were not eligible to receive any bonus.

The study was designed to answer the fundamental question about linking teacher bonuses to student results: “If teachers know they will be rewarded for an increase in their students' test scores, will test scores go up?” The answer from the study was 'no'. There was no overall effect on student achievement by the 'bonus teachers' as compared to the control group.

Matthew G. Springer; Dale Ballou; Vi-Nhuan Le; Daniel F. McCaffrey; J. R. Lockwood; Laura S. Hamilton; Matthew Pepper and Brian M Stecher, *Teacher Pay for Performance: Experimental Evidence from the Project on Incentives in Teaching*, Vanderbilt Peabody College/Rand Corporation, 2010

http://www.performanceincentives.org/data/files/pages/POINT%20REPORT_9.21.10.pdf

2. New York Study

In the 2007–2008 school year, the New York City Department of Education (NYCDOE) and the United Federation of Teachers (UFT) implemented the Schoolwide Performance Bonus Program (SPBP). The researchers conducted this evaluation from February 2009 through March 2011.

The program did not improve student achievement at any grade level. The researchers found that the average mathematics and English language arts test scores of students from elementary, middle, and K–8 schools invited to participate in SPBP were lower than those of students from control schools during all three years of the experiment.

However, the differences were very small and statistically significant only for mathematics in year 3 and were not significant when the researchers controlled for testing effects from multiple years and subjects. Similarly, researchers found no overall effects on state Regents Exam scores for high school students in the first two years (year 3 data were not available for analysis). The program's effects did not differ among schools of different sizes or according to bonus award distribution plan.

The program also did not affect school Progress Report scores. Across all years and all categories of scores for the Progress Reports (environment, performance, progress, and additional credit), the researchers found no statistically significant differences between scores of treatment and control schools. The lack of effects held true for elementary, middle, K–8, and high schools.

The program did not affect teachers' reported attitudes, perceptions, and behaviours. The researchers found no differences between the reported practices and opinions of teachers in treatment schools and those of the control group.

The survey responses about instructional practices, effort, participation in professional development, mobility, and attitudes from the two groups were very similar, with no statistically significant differences. Furthermore, the vast majority of teachers who received bonuses said that the bonus did not affect their performance.

Julie A. Marsh, Matthew G. Springer, Daniel F. McCaffrey, Kun Yuan, Scott Epstein, Julia Koppich, Nidhi Kalra, Catherine DiMartino, and Art (Xiao) Peng, *A Big Apple for Educators: New York City's Experiment with Schoolwide Performance Bonuses: Final Evaluation Report*, Rand Corporation, 2011

http://www.rand.org/content/dam/rand/pubs/monographs/2011/RAND_MG1114.pdf

3. Texas Study

Starting in August 2008, the project implemented two one-year randomized controlled trials to examine the effect of a team level teacher pay-for-performance intervention on middle school student achievement.

Analysis of student achievement outcomes found that the intervention had no effect on student test scores in any of the subject areas across the two years of the experiment. Students instructed by teacher teams who were offered incentives scored slightly better on some standardized tests, but the differences were extremely small and not statistically significant.

Similarly, surveys revealed that bonuses had no significant effect on teachers' reported practices and attitudes. Measured across five different categories—collaboration with other teachers, professional development, parent engagement, instructional practice,

and perceptions of the intervention— the behaviour and attitudes of teachers who were eligible to win a bonus were similar to those of teachers who were not eligible to win. In addition, the surveys showed that a sizable minority of teachers in both the intervention and control groups reported that they lacked a clear understanding of the intervention or had misgivings about it.

This research brief describes work done for RAND Education documented in “Team Pay for Performance: Experimental Evidence From the Round Rock Pilot Project on Team Incentives,” by Matthew G. Springer, John F. Pane, Vi-Nhuan Le, Daniel F. McCaffrey, Susan Freeman Burns, Laura S. Hamilton, and Brian Stecher, *Educational Evaluation and Policy Analysis* [Epub May 14, 2012; doi: 10.3102/0162373712439094]. This research brief was written by David M. Adamson.

http://www.rand.org/content/dam/rand/pubs/research_briefs/2012/RAND_RB9649.pdf

Does Performance-Based Pay Improve Teaching?

OECD Findings from PISA 2009

“A look at the overall picture reveals no relationship between average student performance in a country and the use of performance-based pay schemes. In other words, some high-performing education systems use performance-based pay while others don’t. But the picture changes when taking into account how well teachers are paid overall in comparison with national income.”

“In countries with comparatively low teachers’ salaries (less than 15% above GDP per capita), student performance tends to be better when performance-based pay systems are in place, while in countries where teachers are relatively well-paid (more than 15% above GDP per capita), the opposite is true.” Australian salaries are 27% above GDP per capita according to the OECD.

The report recommends that the only countries which should be considering introducing performance-based pay schemes are those “that do not have the resources to pay all of their teachers well”.

PISA in Focus 16, OECD, May 2012

<http://www.oecd.org/dataoecd/33/16/50328990.pdf>

Research about Incentives for Teachers

“The evidence from these more recent efforts, while limited, suggests that current efforts to pay teachers for performance does not yield higher student achievement gains for students.” (p.3)

“Large-scale studies and teacher testimonies suggest that working conditions are far more important than bonuses in persuading teachers to stay or leave their classrooms. National teacher turnover survey data show that teachers who leave because of job dissatisfaction do so for a variety of reasons that can be addressed: low salaries, poor support from school administrators, a lack of student motivation, a lack of teacher influence over decision-making, and student discipline problems.”

“One essential support—collaboration—seems to matter most for effective teaching. For example, students achieve more in mathematics and reading when they attend schools characterized by higher levels of teacher collaboration for school improvement. (Goddard and Goddard 2007) Similarly, Susan Rosenholtz’s landmark study of two decades ago concluded that “learning-enriched schools” were characterized by “collective commitments to student learning in collaborative settings ... where it is assumed improvement of teaching is a collective rather than individual enterprise, and that analysis, evaluation, and experimentation in concert with colleagues are conditions under which teachers improve.” (p8)

Barnett Berry and Jon Eckert, [Creating Teacher Incentives for School Excellence and Equity](#), National Education Policy Center, School of Education, University of Colorado, Boulder, 2012.

Chicago Program

Under the Chicago *Teacher Advancement Program*, teachers can earn extra pay and responsibilities through promotion to mentor or master teacher as well as annual performance bonuses based on a combination of their value added to student achievement and observed performance in the classroom.

A four year study found that student achievement in reading, mathematics and science was no better in schools participating in the Chicago Teacher Advancement Program (a performance bonus system) than in comparable schools that did not implement the program.

“The program did not consistently raise student achievement as measured by growth in Illinois Standards Achievement Test (ISAT) scores. We found evidence of both positive and negative test score impacts in selected subjects, years, and cohorts of schools, but overall there was no detectable impact on math, reading, or science achievement that was robust to different methods of estimation.” (p.xiv)

Steven Glazerman and Allison Seifullah, An Evaluation of the Chicago Teacher Advancement Program (Chicago TAP) After Four Years: Final Report, Mathematica Policy Research, March , 2012 http://www.mathematica-mpr.com/publications/pdfs/education/TAP_year4_impacts.pdf

Another New York Study

A study published in March 2011 by Harvard University economist, Roland Fryer, evaluated the New York teacher bonus scheme introduced by former Schools Chancellor Joel Klein and found that it failed to increase student achievement. Fryer said in the abstract to the paper:

“I find no evidence that teacher incentives increase student performance, attendance, or graduation, nor do I find any evidence that the incentives change student or teacher behaviour. If anything, teacher incentives may decrease student achievement, especially in larger schools.”

The study concludes:

“Providing incentives to teachers based on school’s performance on metrics involving student achievement, improvement, and the learning environment did not increase student achievement in any statistically meaningful way. If anything, student achievement declined.” [p.5]

Fryer, R.G.(2011), *Teacher Incentives and Student Achievement: Evidence from New York City Public Schools*, NBER Working Paper Series, Paper No 16850, National Bureau of Economic Research, Massachusetts. (<http://www.nber.org/papers/w16850.pdf>)

Performance Pay Linked to Student Results

A study by Derek Neal, Professor of Economics at the University of Chicago, published by the National Bureau of Economic Research concludes that tying teacher performance pay to student test scores is unlikely to improve education. Neal says that recent teacher performance pay schemes have failed because they often rely on measures that were never intended to help determine teacher pay.

“Many accountability and performance pay systems employ test scores from assessment systems that produce information used not only to determine rewards and punishments for educators but also to inform the public about progress in student learning. As long as education authorities keep trying to accomplish both of these tasks with one set of assessments, they will continue to fail at both tasks.” [p.3]

Neal concludes that:

“....accountability systems always create predictable effort distortions when employed as incentive systems. Systems that serve as mechanisms for providing public information about the achievement of students and the performance of schools relative to public education standards distort effort if they contain rewards or sanctions that provide incentives for educators.” [pp. 9-10]

Neal notes that several studies provide persuasive evidence that the measured gains induced by a particular performance pay program represented little or no improvement in actual subject mastery as teachers often resort to coaching students. Coaching involves activities such as practising tests that improve scores on a given assessment without improving student mastery of a subject. Teachers may avoid teaching that leads to more comprehensive learning while increasing time devoted to activities that prepare students for upcoming assessments.

Derek Neal, [The Design of Performance Pay in Education](#), Working Paper No. 16710, National Bureau of Economic Research, Cambridge, Mass, March 2011.

Student Test Scores and Performance Pay

Economic Policy Institute Report from Leading Experts in the Area (The authors include four former presidents of the American Educational Research Association, A former chair of the National Research Council's Board on testing and assessment, a former chair of the committee on methodology of the National Assessment Governing Board, a former associate director of the National Assessment of Educational progress and a former chair of the National Council on Measurement in Education.)

“There is also little or no evidence for the claim that teachers will be more motivated to improve student learning if teachers are evaluated or monetarily rewarded for student test score gains.” (p.2)

“A number of factors have been found to have strong influences on student learning gains, aside from the teachers to whom their scores would be attached. These include the influences of students’ other teachers—both previous teachers and, in secondary schools, current teachers of other subjects—as well as tutors or instructional specialists, who have been found often to have very large influences on achievement gains. These factors also include school conditions—such as the quality of curriculum materials, specialist or tutoring supports, class size, and other factors that affect learning. Schools that have adopted pull-out, team teaching, or block scheduling practices will only inaccurately be able to isolate individual teacher “effects” for evaluation, pay, or disciplinary purposes.” (p.3)

“Individual teacher rewards based on comparative student test results can also create disincentives for teacher collaboration. Better schools are collaborative institutions where teachers work across classroom and grade-level boundaries toward the common goal of educating all children to their maximum potential. A school will be more effective if its teachers are more knowledgeable about all students and can coordinate efforts to meet students’ needs.” (p.4)

“Adopting an invalid teacher evaluation system and tying it to rewards and sanctions is likely to lead to inaccurate personnel decisions and to demoralize teachers, causing talented teachers to avoid high-needs students and schools, or to leave the profession entirely, and discouraging potentially effective teachers from entering it. Legislatures should not mandate a test-based approach to teacher evaluation that is unproven and likely to harm not only teachers, but also the children they instruct.” (p.4)

“Individual incentives, even if they could be based on accurate signals from student test scores, would be unlikely to have a positive impact on overall student achievement for another reason. Except at the very bottom of the teacher quality distribution where test-based evaluation could result in termination, individual incentives will have little impact on teachers who are aware they are less effective (and who therefore expect they will have little chance of getting a bonus) or teachers who are aware they are stronger (and who therefore expect to get a bonus without additional effort).

Studies in fields outside education have also documented that when incentive systems require employees to compete with one another for a fixed pot of monetary reward, collaboration declines and client outcomes suffer. On the other hand, with group incentives, everyone has a stronger incentive to be productive and to help others to be productive as well.” (p.18)

Baker, E.L., Barton, P.E., Darling-Hammond, L., Haertel, E., Ladd H.F., Linn, R.L., Ravitch, D., Rothstein, R., Shavelson, R.J. and Shepard, L.A., (2010) *Problems with the*

Performance Pay Study in Four School Districts

“To better understand the experiments under way, we reviewed programs from across the country that pay teachers for how well they teach and what their students achieve. We studied four school districts’ programs in more detail — Houston, Minneapolis, Charlotte-Mecklenburg, N.C., and Hillsborough County, Fla.”

“Early experiences with value-added approaches suggest that teacher ratings tend to be unstable over time, so a teacher deemed highly successful one year may appear to be below average the next. In Houston, one teacher reported that, without changing his teaching practice, he earned no bonus one year and a \$7,590 bonus the next. As a result of such inconsistencies, teachers called several programs we studied “lotteries.” Although they played them in the hope of winning extra pay, the teachers didn’t accept them as true assessments of their classroom performance. Importantly, teachers said they did not know what changes they had to make in their teaching to earn a bonus.”

“Despite the attractiveness of individual awards, group awards more accurately match the reality of schooling. Because students move from class to class and grade to grade, it’s virtually impossible to attribute a student’s achievement in any subject at any time to a single teacher.”

“The money spent on payoffs for individual successes might better be invested in developing teachers and schools. Funds might be used to improve teachers’ knowledge and skills or build increased instructional capacity at the school level. Experience tells us that neither of these is easy to do well, that large sums of money are wasted paying for irrelevant courses and misused planning time for teachers. However, aiming for more comprehensive reform is likely to have greater payoff for students than continuing to develop isolated bonuses that reward individual teachers, however attractive those approaches seem to be.”

Susan Moore Johnson is the Jerome T. Murphy professor in education at the Harvard Graduate School of Education in Cambridge, Mass. John Papay is a research assistant with the Project on the Next Generation of Teachers at Harvard. Their article is drawn from their co-authored book *Redesigning Teacher Pay: A System for the Next Generation of Educators* (Economic Policy Institute).

Susan Moore Johnson and John Papay, *Expecting Too Much of Performance Pay*, *The School Administrator*, March 2010, No 3 Vol 67
<http://www.aasa.org/SchoolAdministratorArticle.aspx?id=12532>

Study of Performance Pay in Portugal

Researchers from the University of London analysed the impact of teacher performance pay on the achievement of students in the Portuguese national exams over a seven year period. Teachers in those parts of Portugal which did not have performance pay acted as a control group.

“Specifically, we draw on matched student-school panel data covering the population of secondary school national exams over seven years. We then conduct a difference-in-differences analysis based on two complementary control groups: public schools in two autonomous regions that were exposed to lighter versions of the reform than in the rest of the country; and private schools, which are also subject to the same national exams but whose teachers were not affected by the reform.”

“Our results consistently indicate that the increased focus on individual teacher performance caused a significant decline in student achievement, particularly in terms of national exams. The triple difference results also document a significant increase in grade inflation.”

Pedro S Martins Individual Teacher Incentives, Student Achievement and Grade Inflation, Discussion Paper No 4501, Institute for the Study of Labor, Bonn, March 2009 <http://ftp.iza.org/dp4051.pdf>

Study of Performance Pay in Sweden

A study of the effects of individual performance-related pay (PRP) on Swedish upper-secondary teachers. The empirical data were generated through semi-structured interviews of teachers at four schools in three different municipalities.

The findings demonstrate a wide gap between the goals of the PRP scheme and their fulfilment in practice.

“Since the fundamental objective of the pay scheme is to enhance teachers’ motivation by rewarding good performance, the teachers must understand the link between performance and pay. However, none of the participants in this study can clearly see such a link. For most of them the connection seems arbitrary or unintelligible, and many think that work of peripheral concern is rewarded.” (p.384)

“Another aspect of the individual PRP system is that it can be used to punish or silence teachers who are critical or have disparaging opinions. More than a third of the teachers express such a view.” (p.385)

“Teachers perceive the PRP system as arbitrary, unfair, unclear and feel that it fosters an awkward working environment. In summary, the findings indicate that the pay scheme does not contribute to the improvement of results by constructing clear connections between salary, motivation and results.” (p.389)

Lundström Ulf, *Teachers' Perceptions of Individual Performance-related Pay in Practice: A Picture of a Counterproductive Pay System*, Educational Management

Performance Pay in the Public Sector

Major OECD Study of 14 countries

“Performance measurement in the public sector requires a large element of managerial judgement. The notion of performance itself is complex, owing to the difficulty of finding suitable quantitative indicators and because performance objectives often change with government policy. Many studies have concluded that the impact of PRP on performance is limited, and can in fact be negative.”

“Evidence cited in this book indicates that the impact of PRP on motivation is ambivalent: while it appears to motivate a minority of staff, it seems that a large majority often do not see PRP as an incentive. While base pay as it relates to the wider “market” is important, supplementary pay increases for performance are a second-rank incentive for most government employees, especially those in non-managerial roles. Job content and career development prospects have been found to be the strongest incentives for public employees. PRP is unlikely to motivate a substantial majority of staff, irrespective of the design.” (p.4 Executive Summary)

OECD, Performance Related Pay Policies for Government Employees, 2005
http://www.oecd.org/document/9/0,3746,en_2649_34139_35553801_1_1_1_1,00.html#ExecutiveSummary



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