

SAVE OUR SCHOOLS

Education Research Brief

**Teacher Bonuses and Student
Achievement**

Trevor Cobbold

August 2010

<http://www.saveourschools.com.au>

1. Introduction

Both Labor and the Liberal/National party coalition have stated that they will introduce bonus payments for teachers linked to improvements in student achievement.

If elected, a Labor Government will pay bonuses of up to \$8000 to about 25,000 of the best teachers, starting in 2014. A national system will be developed to identify the best performing teachers. Assessment will include teachers being observed during lessons, student test results, parent feedback, the teacher's qualifications, mentoring of junior staff and contribution to extra-curricular activities and student support. The scheme is estimated to cost \$1.25 billion over five years.

A Coalition Government would pay bonuses of around \$6000 starting in 2013. Preference will be given to teachers in disadvantaged areas, with a high proportion of special needs students or in regional areas. The program will be funded by restructuring the National Partnership agreements with the states to give extra resources to disadvantaged schools, to tackle poor literacy and numeracy skills and to improve the quality of teaching.

The fund would be overseen by an independent board that would assess teachers nominated for reward by principals, but the board would determine how many teachers received bonuses and the amount to be paid. The scheme is estimated to \$210 million over three years.

Neither party has provided any evidence that teacher bonuses will deliver improvements in student achievement. This is simply assumed.

There is a long history of such performance pay schemes for teachers in other countries, especially in the United States. For example, in the mid-1980s, 25 US states had mandated performance pay programs. However, most only lasted a few years. They were discontinued because of problems in conducting evaluations and measuring performance accurately, administrative difficulties, teacher resistance, and inadequate funds [Harris 2007].

There has been renewed interest in teacher performance pay in the US in recent years. Many states are experimenting with programs in some school districts. The Bush Administration introduced a federal program called the Teacher Incentive Fund (TIF) to help school districts implement merit pay systems. It has been dramatically expanded under the Obama administration, with funding increasing from \$97 million in 2008-09 to \$487.3 million in 2009-2010. Teacher performance pay is a key requirement for states to participate in President Obama's Race to the Top school funding program.

The most common teacher performance pay programs reward teachers on their practice and/or on the achievement of their students. Some are incorporated in career and salary structures, while others provide annual cash bonuses of the type that Labor and the Coalition will introduce.

In Australia, the Victorian Government introduced a pilot teacher bonus program last year. Its Teacher Rewards program provides an annual bonus to the top 30 per cent of high-performing teachers assessed by their schools.

2. Research evidence

There are relatively few rigorous studies of the impact of teacher bonus programs on student achievement. A RAND Corporation study which reviewed some of the literature stated:

Regardless of the type of pay-for-performance program, there have been few rigorous evaluations of how teacher - or school - based performance incentives serve to improve student achievement in the U.S. The little that is known, largely from abroad, paints an inconsistent picture of the effectiveness of pay-for-performance programs on student achievement. [Buddin et.al. 2007: 2]

A recent review of research studies of incentive pay programs identified only ten studies in the US and other countries that attempted to isolate a causal effect on student achievement [Podgursky & Springer 2008]. Eight of the studies found positive effects and two found mixed effects. However, it is difficult to draw clear inferences because the studies are very diverse in terms of incentive design, population, type of incentive (group versus individual), and duration of the incentive program. Several of these studies were conducted in India, Israel and Kenya, countries whose education systems and circumstances are quite dissimilar to Australia. Some of the studies also found evidence of manipulation of test results.

A policy brief prepared for the incoming Obama administration by the RAND Corporation on pay-for-performance (P4P) schemes which attach financial rewards for teachers to student achievement on standardized tests concludes:

Overall, there is insufficient evidence to support claims that P4P will improve achievement in the United States. [Hamilton & Li 2009]

A newly published RAND study of the experience with pay-for-performance programs in the public sector states that the evidence on their effect in education is mixed:

The literature on P4P is also mixed; some programs have been associated with improvements in achievement, but it is not always possible to distinguish real gains from score inflation. [Stecher et.al. 2010: 194]

Evaluation studies of four of the most significant teacher performance pay programs in the US have been published in the last year [ECS 2010]. These programs operate in Iowa and Texas and in the Chicago and Denver school districts. Each evaluation found that cash bonus for teachers do not have any significant effect on student achievement.

3. Iowa program

The Iowa *Pay for Performance* program was trialled in three school districts beginning in 2007-08. One district adopted a career ladder program in which teachers were rewarded for taking on extra professional roles and responsibilities. A second district adopted a performance bonus program based on student achievement while another used both measures.

An evaluation report on the scheme was published earlier this year [Rowland et.al. 2010]. It used multiple regression techniques to identify differences in standardized test scores in mathematics, reading, and science between students from schools in pilot programs and students in matched comparison schools.

It found that in the district which used the hybrid career ladder/performance bonus program in student achievement reading and science increased by more than in the comparison schools, but there was no effect in mathematics. Student achievement in the district which adopted a performance bonus program was lower in the pilot schools for reading and mathematics than in the comparison schools. In the third district, which used a career ladder program, mathematics, reading, and science scores for students attending the pilot schools were not statistically different from those of students attending comparison schools.

One caveat to the study is that the pilot programs were implemented for only one academic year, so it may have been difficult for them to have any realized effect on the way students perform on standardized tests.

4. Texas program

The Texas *Governor's Educator Excellence Grants* program was trialled in 99 high-poverty high-achieving schools from 2005-06 to 2007-08. It was the largest, state-funded teacher performance bonus system in the US until it was dismantled in 2009 and its funding re-directed to another program. Teacher bonuses were determined by four criteria, of which two were required and two were optional. Schools had to use student performance and teacher collaboration, but could also use measures of teacher commitment and initiative as well as placement in hard to staff areas.

An evaluation report published in 2009 compared student test score gains in the participating schools with other schools using several different modelling strategies [Springer et.al. 2009]. It found no evidence of improvement in student achievement. Depending on the modelling approach used, the analysis found that the program had a weakly positive, negative or negligible effect on student achievement gains in reading and mathematics.

The study also found no evidence of any relationship between student gains in reading and mathematics and the design of the incentive pay scheme. First, the size of the bonus did not have any effect on gains in student achievement. The average maximum bonus award was \$3,716 with a range from the lowest bonus of \$1,429 to the highest of \$10,937. Second, there was no difference in effect according to whether the bonuses were paid on the level of student achievement, gains in achievement or a combination of both. Third, there was also no difference in effect according to whether the bonuses were awarded on the basis of individual teacher performance or the entire school.

5. Chicago program

The Chicago *Teacher Advancement Program* (TAP) was funded through a combination of private funds and federal funding from the TIF program. It was adopted in ten schools in the Chicago school district in 2007-08 and is being expanded by an additional ten schools each year over a four year period.

Under the 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. The funding pool for teacher performance bonuses is supposed to support an average bonus of \$2,000 per teacher based on value added to student achievement and observed classroom performance. In subsequent years, the target average payout rises to \$4,000 per teacher.

A study of the first year of operation of the program in 2007-08 found no discernable impact on student achievement [Glazerman et.al. 2009]. A study of its impact in 2008-09 was published last May [Glazerman & Seifullah 2010]. It compared results from the 16 participating schools with a group of over 200 schools with similar student demographics, school size, teacher-retention rates, accountability status, and levels of student achievement. It found no statistical difference between student achievement in mathematics and reading in the two groups. The study also found that the scheme did not improve teacher retention.

6. Denver program

The Denver *Professional Compensation System for Teachers* is perhaps the most prominent compensation reform effort yet in the US. It was implemented in 2005-06. Under the scheme teachers can receive bonuses by obtaining advanced degrees and certifications, completing specialized professional development, demonstrating proficient practice through a newly-designed professional evaluation system, working in a high-needs school, meeting classroom learning objectives and exceeding student achievement expectations. Teachers could choose to opt into the scheme or continue to be paid based on the single salary schedule.

An initial evaluation of the scheme was conducted in 2007 [Wiley et.al. 2008]. The study used a multi-level, “value-added” model to estimate achievement outcomes attributable to specific teachers with statistical controls for non-educational factors. It compared the results between teachers who participated in the program and those that did not. It also analysed student achievement effects attributable to particular teachers on the various incentives available in the program.

The study found no evidence that teachers in the program had improved student achievement in reading and mathematics more than teachers who did not participate. Small effects were observed in some analyses, but in most cases these were associated with teacher characteristics such as previous completion of an advanced degree or more than four years of teaching experience.

A qualification to these conclusions is that the study was based on only two years of student achievement data (2005-06 and 2006-07) and it may take longer for the effects of the performance incentives to take effect.

A further evaluation was published earlier this year which used student and teacher data for 2001-02 to 2008-09 [Wiley et.al. 2010]. Once again there was little observable impact on student achievement. Teachers voluntarily participating in the program slightly outperformed their non-participant colleagues, and these teachers’ achievement effects appeared to increase slightly at the point of opt-in. However, the study concluded that it was an open question whether such differences can be considered as an effect of the program or whether it is the result of individual differences between teachers who chose to participate and those that did not. The differences in results were mixed when participants were compared to a matched set of non-participating teachers.

7. Conclusion

Each of these recent studies of the four major pay-for-performance systems in the United States found no conclusive evidence that the payment of bonus to teachers increases student achievement. Schools and teachers participating in these programs did not achieve any higher results than comparable schools or teachers not participating in the programs.

It is likely that all these programs have achieved is to encourage teachers to teach to the test more in order to be eligible for bonuses. As Diane Ravitch, Professor of Education at New York University and former US Assistant Secretary of Education, says:

Thus far, there is a paucity of evidence that paying teachers to raise test scores leads to anything other than teaching to the test. [Ravitch 2010: 192]

Thus, both Labor and Liberal have committed to implement bonus schemes without regard to the evidence that they have little impact on student achievement. Both parties are acting out of faith and the result is likely to be a huge waste of money. All they will do is encourage more teaching to the test and artificial inflation of test scores.

Labor has also promised that a further \$400 million over five years will be provided to pay cash bonuses to schools which demonstrate increased average student achievement. No evidence has been given to suggest that this scheme will have any success. Indeed, the evidence is that it only leads to test score inflation as it encourages schools to spend more time on practising for tests, poaching high achieving students from other schools and rorting and cheating their test results.

Cash bonuses for teachers and schools will only add to the existing incentives to teach to the test and rort and cheat results created by My School. Together they will corrupt and distort education in Australia as it has done in the US, and especially in New York City under Julia Gillard's mentor, schools chancellor Joel Klein, where test score inflation has been rampant in recent years.

This funding could have been better targeted at schools with high levels of learning needs and reduce the massive achievement gap between rich and poor in Australia's schools. As the President of the Australian Primary Principals Association, Leonie Trimper, said:

We would rather see the Government concentrate on fixing the funding formula so that the poorest schools got the help they needed. [Canberra Times, 10 August]

References

Buddin, R.; McCaffrey, D.; Kirby, D & Xia, N. 2007. Merit Pay for Florida's Teachers: Design and Implementation Issues. Working Paper WR-508-FEA, RAND Corporation, Santa Monica CA. Available at: http://www.rand.org/pubs/working_papers/WR508/

Education Commission of the States (ECS) 2010. Teacher Merit Pay: What Do We Know? *The Progress of Education Reform* 11 (3). Available at: <http://www.ecs.org/clearinghouse/86/40/8640.pdf>

Glazerman, S.; McKie, A. & Carey, N. 2009. An Evaluation of the Teacher Advancement Program (TAP) in Chicago: Year One Impact Report. Mathematica Policy Research, Washington DC, April. Available at: http://www.mathematica-mpr.com/publications/PDFs/education/TAP_rpt.pdf

Glazerman, S. & Seifullah, A. 2010. An Evaluation of the Teacher Advancement Program (TAP) in Chicago: Year Two Impact Report. Mathematica Policy Research, Washington DC, May. Available at: http://www.mathematica-mpr.com/publications/PDFs/education/tap_yr2_rpt.pdf

Hamilton, L. & Li, J. 2009. Designing Effective Pay-for-Performance in K-12 Education. RAND Policy Brief, RAND Corporation, Santa Monica, CA. Available at: http://www.rand.org/pubs/research_briefs/RB9425/index1.html#references

Harris, D. 2007. *The Promises and Pitfalls of Alternative Teacher Compensation Approaches*. Education and the Public Interest Centre, University of Colorado, Boulder, and the Education Policy Research Unit, Arizona State University, April. Available at: <http://www.epicpolicy.org/publication/the-promises-and-pitfalls-alternative-teacher-compensation-approaches>

Rowland, C.; Brown-Sims, M.; Cushing, E.; Hinojosa, T.; Manzeske, D. & Swanlund, A. 2010. *Iowa's Pay-for-Performance and Career-Ladder Pilot Program: External Evaluation Final Report*. Report submitted to the Iowa Department of Education, Learning Point Associates, Naperville, IL. Available at: <http://www.desmoinesregister.com/assets/pdf/D2156693429.PDF>

Podgursky, M. & Springer, M. 2007. Teacher Performance Pay: A Review. *Journal of Policy Analysis and Management*, 26 (4): 909-949.

Ravitch, D. 2010. *The Death and Life of the Great American School System*. Basic Books, New York.

Springer, M.; Lewis, J. & Podgursky, M., Ehlert, M.; Taylor, L.; Lopez, O. & Peng, A. 2009. *Governor's Educator Excellence Grant (GEEG) Program: Year Three Evaluation Report*. National Centre on Performance Incentives, Vanderbilt University, Nashville, 31 August. Available at: http://performanceincentives.org/news_events/detail.asp?pageaction=ViewSinglePublic&LinkID=426&ModuleID=24&NEWSPID=1

Stecher, B.; Camm, F.; Damberg, C.; Hamilton, L.; Mullen, K.; Nelson, C.; Sorensen, P.; Wachs, M.; Yoh, A.; Zellman, G. & Leuschner, K. 2010. *Toward a Culture of Consequences: Performance-based Accountability Systems for Public Services*. RAND Corporation, Santa Monica CA. Available at: <http://www.rand.org/pubs/monographs/MG1019/>

Wiley, E.; Gaertner, M.; Spindler, E. & Subert, A. 2008. *Denver ProComp Evaluation: A Mixed-Method Evaluation of Denver's Alternative Teacher Compensation System. Year 1 Report*. Department of Education, University of Colorado, Boulder. Available at: <http://static.dpsk12.org/gems/newprocomp/ProCompEvaluation200607.pdf>

Wiley, E.; Spindler, E. & Subert, A. 2010. *Denver ProComp: An Outcomes Evaluation of Denver's Alternative Teacher Compensation System*. School of Education, University of Colorado, Boulder. Available at: <http://static.dpsk12.org/gems/newprocomp/ProCompOutcomesEvaluationApril2010final.pdf>