

C. Questions specific to performance pay

How large do performance incentives need to be in order to be effective?

Although researchers agree with the theory that incentives must be large enough to matter to teachers to influence their classroom performance, it is not clear what “large enough” means. A limited number of studies have explored this question. Early reviews of the performance-based compensation research conclude that there is not enough experimental research to prescribe system design and definitive bonus size (Hassel, 2002; Podgursky & Springer, 2007). More recently, there has been an increase in experimental research in performance-based compensation. Although there is still no definitive answer to this question, the research does provide insight into how some programs have chosen to determine size of incentive payouts and, to a lesser extent, some data on the effectiveness of programs. Performance incentives for public school teachers range in amount. In a review of programs, Springer and Balch (2009) saw a range of incentives from a minimum bonus of \$20 to a maximum of \$15,000 in one school district, which represents a range of between .4 percent of a teacher’s base monthly salary to 270 percent.

In examining the issue of effectiveness of bonus size, the conversation focuses on two primary variables: motivation and student achievement. This issue is complicated because research in fields outside of education suggests that there are significant differences between individuals that are not easy to control for or model. Varadarajan and Futrell (1984), for example,

examined what private sector employees believe to be the smallest meaningful pay increase. Their review of the literature cited a range of 3.5 percent to 11.5 percent in prior studies. On average, employees in their own study reported that 7.5 percent was the smallest pay increase that they would consider meaningful. A similar study that used a salesperson sample found that 5 percent was the smallest pay increase that participants considered attractive (Worley, Bowen, & Lawler, 1992).

Lazear (2000) found that even modest performance incentives could yield significant gains in productivity in one case study from the private industry. When the company (a producer and installer of automobile windshields) switched to a performance-based pay system, average worker wages increased by slightly more than 10 percent. However, the average level of output per worker increased by about 44 percent, half of which was due to the average worker producing more because of incentive effects. The other half was due to an increase in average worker ability as a result of selection effects (i.e., hiring and retaining high-performing workers who were effective at producing the desired output).

These results suggest that it is important to distinguish short-term and long-term effects of incentives when determining how large performance incentives need to be. In the short run, the effect of the incentive is entirely due to motivation effects on the current workforce.

Therefore, it is important to estimate how those who are already in the teaching force would respond to incentives of various sizes. In the long run, however, the incentive includes not only a motivation effect but also a selection effect, which inevitably changes in the makeup of the teaching force. Lazear's findings suggest that incentives will attract new applicants, who are likely to fare well under performance-pay systems, and retain high performers who are successful at producing desired outcomes—in this case, student learning gains. Those who are less effective will self-select out because they will not qualify for rewards and will have less incentive to stay. Determining the optimal size of an incentive is important because if incentives are too small, they will fail to motivate employees to change their behavior in ways that will lead to higher performance. If they are unnecessarily large, they may be popular with employees, but they will cost more than necessary to achieve the desired outcomes.

McAdams and Hawk (1994) found that the median target payout in the private-sector bonus plans they studied was 5 percent and that plans targeting too much below that amount were perceived as less successful by the companies using them. They also found, however, that factors other than the payout were important and that bigger incentives were not necessarily better. They concluded that if teachers perceived communication and other working conditions in a positive way, incentives of 15 percent appeared to exceed the amount necessary to prompt employees to change their practice.

Research is also emerging on the impact of performance-based compensation on student achievement and teacher turnover. One early study conducted by Lavy (2002) examined the effects of two education interventions on

high school student achievement implemented in Israel in 1995. The first intervention was a group-based incentive plan that awarded cash bonuses to schools for reducing dropout rates and improving scholastic achievement. Teacher salary bonuses ranged from \$200 to \$715. The second intervention provided additional resources, such as additional staff and smaller teacher-student ratios, instead of cash awards, if schools met graduation and student achievement targets. Lavy found significant gains in student performance in the schools participating in the teacher incentive intervention two years after the program was implemented, as measured by increases in the average number of credits per student and difficulty of coursework, the proportion of students taking graduation examinations, average scores and passing rates on these examinations, and lower dropout rates. Though he also found increases in student credit units in the schools participating in the resources intervention, he found no reduction in dropout rates and concluded that the teacher incentive program was a more cost-effective approach.

Several studies of teacher attitudes toward school-based performance award programs in Kentucky and in Charlotte-Mecklenburg, North Carolina, revealed that on the whole, teachers considered the possibility of receiving a performance bonus a very desirable outcome (Heneman & Milanowski, 1999). Teachers in Kentucky received \$1,300 to \$2,600, whereas those in Charlotte-Mecklenburg received even less, \$750 to \$1,000. Subsequent interviews with teachers in Charlotte-Mecklenburg revealed that teachers were highly critical of the small bonuses offered by the district, especially because the \$1,000 bonuses were typically less than \$600 after payroll taxes were deducted

(Heneman, 1998). Teacher opinion varied, however, as to whether tripling the size of the bonuses would be any more motivational. In contrast, teachers in Kentucky did not view the size of their performance awards as insufficient and did not speak disparagingly of them in the same way that teachers from Charlotte-Mecklenburg did. It is important to note that these performance-based compensation programs consist of different reward structures, i.e., individual versus group awards, thus makes strict comparisons difficult.

According to Heneman (1998), these findings have several implications for the use of bonuses in school-based performance award programs: Bonuses must be of a magnitude that is truly noticeable and meaningful to the teachers. At the Charlotte-Mecklenburg schools, teachers uniformly commented on the relatively small bonus amount in negative terms, suggesting that the bonus was not the strong positive consequence that the district intended it to be. It would seem that for bonuses to have maximum motivational value (either as a signal of goal importance or as a reward for goal attainment), they must be a meaningful addition to teacher compensation, perhaps at least 5 percent of base pay.

Evaluation results from three programs in Texas—Governor Educator Excellence Grant (GEEG) program, Texas Educator Excellence Grant (TEEG) program, and District Awards for Teacher Excellence (DATE)—have shown limited effects on student achievement but more significant impacts on teacher turnover. In the report on the GEEG program, Springer, Lewis, Podgursky, Ehlert, Taylor et al. (2009) found that a bonus of \$1,300 reduced the predictability of teacher turnover, and \$3,000 in bonus

payments cut turnover in half. The evaluation report on the DATE program (Springer, Lewis et al., 2010) showed similar results: Turnover increased among teachers who did not receive a DATE award, whereas awards greater than \$100 linked with a significant decrease of probability of teacher turnover in district-wide plans. The authors also found the same pattern for awards greater than \$283 in select school plans (Springer, Lewis et al., 2010). Another study on a program in North Carolina found that a bonus of \$1,800 also reduced the predicted probability of turnover (Clotfelter, Glennie, Ladd, & Vigdor, 2006).

Program evaluation results have shown, however, that incentive amount did not appear to matter in the case of student achievement. Reports on Texas; Nashville, Tennessee; and Chicago, Illinois, programs all showed no effect of performance-based compensation on student achievement (Glazerman & Seifullah, 2010; Springer, Ballou et al., 2010; Springer, Lewis, Podgursky, Ehlert, Gronberg et al., 2009). Bonus sizes ranged in the studies from \$20 to \$20,462 (Texas TEEG), \$5,000 to \$15,000 (Nashville, Tennessee POINT), and \$2,500 to \$12,000 (Chicago, Illinois TAP).

Through this examination of the research, it is important to note that the highest available performance incentives might not have the greatest impact on student achievement. Other results indicate that although student achievement effects are not present, teachers in programs with a range of performance bonuses are staying in the classroom. Policymakers suggest that bonuses should be of a magnitude that is noticeable and meaningful (Odden & Wallace, 2007) but also that teachers must value the reward (Heneman, Milanowski, & Kimball, 2007).

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