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Double for Nothing?

Experimental Evidence on an Unconditional Teacher Salary Increase in Indonesia

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The level and structure of public-sector compensation play a key role in the ability of governments to attract, retain, and motivate high-quality employees and to deliver services effectively. As a result, countries sometimes implement large increases in public-sector salaries to attract higher-quality applicants to government jobs and to better motivate existing employees. While such salary increases may improve the quality of new employees hired over time, they also lead to substantially higher salary spending on existing employees, with large fiscal costs that crowd out other public expenditures. Thus, understanding the extent to which unconditional pay increases make incumbent public-sector workers more motivated and productive is a key consideration in evaluating the cost-effectiveness of such salary increases.

Yet only limited evidence on this policy-relevant question exists, in part because conducting empirical research in public-sector personnel economics is difficult. Challenges include measuring employee productivity in the public sector and generating exogenous variation in the pay of public-sector workers. A growing experimental literature examines

how changes in public-sector compensation affect worker productivity, but most studies to date have focused on pilots of performance-linked bonus programs, as opposed to the unconditional pay increases that are much more typical in bureaucracies.

We provide experimental evidence on the impact of a large unconditional salary increase on the effort and productivity of incumbent public employees. Our study was conducted in the context of a policy change in Indonesia that permanently doubled the base pay of eligible civil-service teachers who went through a certification process. The reform moved teacher salaries from the 50th to the 90th percentile of the college-graduate salary distribution. Civil-service teachers in Indonesia also enjoy generous benefits and high job security, and quit rates were very low even before the pay increase. Thus, the teachers in our study are typical of public-sector employees in many low- and middle-income countries, who hold highly coveted jobs and enjoy a significant wage premium relative to their private-sector counterparts with similar observable characteristics.

Given the large fiscal burden of the policy, teacher access to the certification program was phased in over 10 years

(from 2006 to 2015), with priority in the queue being determined by seniority. Thus, many eligible teachers had to wait several years before being allowed to enter the certification process. Working closely with the government of Indonesia, we implemented an experimental design that took advantage of this phase-in. It allowed all eligible teachers in 120 randomly selected public schools to access the certification process and the resulting doubling of pay immediately; in contrast, teachers in control schools experienced the “business as usual” access to the certification process through the gradual phase-in over time. The study was conducted over a three-year period, in a near-nationally representative sample of 360 schools drawn from 20 districts and all major regions of Indonesia.

Our experiment successfully accelerated access to the certification process and doubling of pay for eligible teachers in treatment schools. It resulted in a 29 percentage point increase in the fraction of teachers in treatment schools who had been certified and received the salary supplement at the end of two years, and a 24 percentage point increase at the end of three years relative to the control group. Among the “target” teachers (who were eligible but not certified at the baseline), there was a 54 and 45 percentage point increase, respectively, in teachers who were certified and received their salary supplement at the end of two and three years in treatment schools relative to control schools.

The experiment significantly improved measures of teacher welfare: at the end of two and three years of the experiment, teachers in treated schools had higher income, were more likely to be satisfied with their income, and were less likely to report financial stress. They were also less likely to hold a second job, and they worked fewer hours on second jobs (the last two differences are significant after two years, but not after three).

Yet despite this improvement in incumbent teachers’ pay, satisfaction, and time available to focus on their main job (owing to a reduction in second jobs), the policy did not improve either teachers’ effort or student learning. Teachers in treated schools did not score better on tests of teacher subject knowledge, and we find no consistent pattern of impact on self-reported measures of teacher attendance. Most importantly, we find no difference in student test scores in language, mathematics, or science across treatment and control schools.

These results suggest that several posited mechanisms by which an unconditional salary increase could lead to improved effort and productivity of incumbent workers may not have applied in our setting. For instance, it is often argued

that increasing employee pay in nonincentivized pro-social tasks such as teaching or health care may reduce time spent on outside jobs and increase time and effort on the primary job. Advocates of higher pay also point to models of reciprocity and gift exchange, where employees pay back employers for a wage premium with an effort premium. Finally, qualitative studies have argued that low pay makes it difficult for managers to demand accountability from employees who are considered underpaid, and that higher pay would foster greater professionalism and adherence to standards.

It is important to note that our results are from a large-scale experimental evaluation of a policy change that aimed to improve education quality. By design, such policy experiments are unlikely to yield a precise theoretical test of any one of the mechanisms listed above. However, from a policy perspective, we are more interested in whether such an expensive policy (which costs over 5 percent of the national budget) improved the effort of incumbent teachers and the learning outcomes of their students through any combination of the aforementioned mechanisms. Our results suggest that even the composite effect of these mechanisms was negligible in this setting.

Our results *do not imply* that salary increases for public employees would have no positive impacts on service delivery in the long run through extensive-margin impacts. Rather, our results contribute to a more informed discussion on the cost-effectiveness of such a policy. Since the annual flow of new workers is low relative to the stock of existing workers, most extensive-margin benefits would accrue far in the future. In contrast, the costs of unconditional salary increases are incurred immediately (and are mostly driven by increased pay for incumbent workers). We show that at reasonable discount rates, the intensive-margin effects have a considerably greater weight than the extensive-margin effects in determining the present value of a policy of across-the-board pay increases. Thus, if there are no intensive-margin effects on productivity, implying that the extensive margin is the only channel for improved productivity, then our results suggest that across-the-board salary increases are a very inefficient way of improving education quality relative to alternate uses for public education funds.

Several global education policy reports recommend increasing teacher pay in low-income countries as a way to improve the motivation and performance of incumbent teachers. Following a similar set of arguments, the Indonesian government’s publicly stated rationale for the large salary increase included the hope that it would improve teacher morale, motivation, and job satisfaction, and thereby lead

to increased teacher effort and student learning. Our results suggest that while the policy improved the welfare of incumbent teachers, it yielded no corresponding improvement in the learning of students taught by these teachers. Such evidence is especially relevant for improving policymaking in a public-sector setting, which has no market test of whether increasing employee salaries also increases productivity, and where unconditional pay raises are difficult to reverse.

NOTE:

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