The Impact of Doubling Teacher Salary on Student Performance in Indonesia

Sector(s): Education, Political Economy and Governance

Location: TBD, Indonesia

Sample: 360 schools across twenty districts in all major regions of Indonesia

Target group: Teachers

Outcome of interest: Student learning

Intervention type: Cash transfers Unconditional cash transfers

AEA RCT registration number: AEARCTR-0001465

Data: Download dataset from Harvard Dataverse

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Partner organization(s): World Bank

Higher teacher pay may increase teacher motivation and effort, yet little rigorous evidence exists on how large teacher salary increases might improve student learning. Researchers examined the impact of doubling teacher salary on student and teacher performance in Indonesia. This intervention had some positive effects on teachers: they reported higher levels of satisfaction with their jobs and less financial stress and were less likely to have a second job. However, doubling teacher salary had no effect on teacher knowledge, student test scores, or self-reported teacher attendance.

Policy issue

Policymakers sometimes implement large salary increases for public sector employees to attract high quality applicants to government jobs and to motivate existing employees. For the case of public teachers, advocates of higher pay argue that increasing teacher salaries may reduce the time spent on outside jobs and increase time and effort on teaching. While salary increases may improve the quality of new public teachers hired over time by attracting better candidates (see related evaluation), there is limited evidence about how pay increases affect the motivation and performance of incumbent teachers, and how this translates to student learning. Can unconditional doubling of teacher salaries improve teacher performance and student learning?

Context of the evaluation

Indonesia has one of largest educational systems in the world, with 50 million students in more than 500 districts. Indonesia exceeded 90 percent primary school enrollment by the early 1980s and has sustained high enrollment rates since. Before 2005, teacher salaries in Indonesia were lower than teacher salary benchmarks in other Southeast Asian countries. However, teacher jobs were still attractive, with salaries equal to the median salary for college graduates, and quit rates were low. Similar to most public sector employees in low- and middle-income countries, public teachers also enjoyed more generous benefits than private sector teachers and had high job security.

The Indonesian national government passed the “Teacher Law” in 2005, stating that eligible teachers who also successfully completed a certification process would obtain a permanent doubling of their salaries. Civil service teachers with a four-year

degree and a high rank in civil service through tenure were eligible. The certification process was guaranteed for most who tried; it included submitting a portfolio of work and attending a two-week training. Due to budgetary restrictions, the Indonesian government incrementally rolled out the "Teacher Law" with quotas enabling ten percent of eligible teachers to receive certification and the pay increase every year.



Children in a classroom in Indonesia. Photo: Shutterstock.com

Details of the intervention

Researchers worked closely with the Ministry of National Education of the Government of Indonesia to implement a randomized evaluation to assess the impact of doubling teacher salary on student performance. Researchers selected a nationally representative sample of 360 public primary and junior secondary schools across twenty districts in all major regions of Indonesia. In 2009, researchers randomly assigned 120 schools to receive the intervention, which consisted of speeding up the teacher certification process. Specifically, all eligible teachers in the intervention schools who had not yet been certified were invited to receive the certification and pay increase in the following year rather than waiting under the quota system. The remaining 240 schools made up the comparison group, which continued to implement the gradual phase-in of teacher certification with annual quotas of ten percent.

To understand the impact of this pay increase, researchers interviewed head teachers, other teachers, and students across intervention and comparison schools two and three years after the intervention. They also analyzed test scores measuring student outcomes and teacher knowledge.

Results and policy lessons

Doubling public teacher salaries improved self-reported job satisfaction for teachers, but had no effect on test scores for students, teacher knowledge, or teacher work attendance. Researchers suggest that there may be more cost-effective ways of improving student learning outcomes, including other salary-based interventions.

Speeding up the teacher certification process increased teacher salaries as intended. Two years after the intervention, teachers in the intervention schools were more than twice as likely to have received certification and doubling of pay than those in the comparison schools. Those that received pay increases had a salary increase equivalent to moving from the median salary for college graduates to the top 10 percent.

Teachers' job satisfaction increased. Teachers in intervention schools were 7 percentage points more likely to report being satisfied with their income three years after the intervention compared to 60 percent of their peers in the control schools (a 12 percent increase). In addition, they were 9 percentage points less likely to report having financial problems after three years compared to 56 percent of their peers in the control schools (a 16 percent decrease). They were also 5 percentage points less likely to be holding a second job compared to 27 percent of their peers in the comparison group (a 19 percent decrease).

No impact on student or teacher test scores, teacher attendance, or teachers' probability of pursuing further education. Despite positive effects on teachers' job satisfaction and financial conditions, students in intervention schools did not have higher language, mathematics, or science test scores than students in comparison schools, nor did students of eligible and certified teachers in intervention schools compared to their peers in the same school with teachers that were not eligible for the pay raise. Teachers in the intervention schools did not score better on teacher test scores or attendance rates, nor were they more likely to be pursuing further education.

Cost effectiveness. Pay increases are typically quite expensive for governments, so it is important to know their full impacts. Teacher salary increases cost US$138 per student per year—over 5 percent of the national budget. The researchers suggest that there may be more cost-effective ways of improving student learning outcomes, including other salary-based interventions. For example, an experiment , testing performance-based incentive pay in India achieved a 0.15 standard deviation math test score increase with an average annual cost of US$4.[1]

While student test scores did not increase in the short term as a result of doubling teacher salaries, it is possible that the higher salaries could attract stronger candidates in the future. However, the high costs incurred today for gains in the future mean that unconditional salary increases are unlikely to be a cost-effective policy option.

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1. Muralidharan, Karthik and Venkatesh Sundarraman. 2011. "Teachers Performance Pay: Experimental Evidence from India." Journal of Political Economy 119, no. 1:39-77