

# Double for Nothing? Experimental Evidence on an Unconditional Teacher Salary Increase in Indonesia

Joppe de Ree, Karthik Muralidharan, Menno Pradhan, and Halsey Rogers (2018)

Parijat Lal

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# Motivation

- Level/structure of public-sector compensation key in attracting, retaining, and motivating quality employees and delivering services
  - Represents 27% of government spending in low- and middle-income countries on average, 42.8% and 65.6% in health and education
- Evaluating cost-effectiveness of government salary increases
  - May improve quality of new employees hired over time
  - But, large fiscal costs of increasing salary spending on existing employees crowd out other public expenditure
- Main question: How does a large unconditional increase in salary affect the performance of incumbent employees in the public sector?
  - Previous work limited to performance-linked bonus programs or lack of adequate exogenous variation in pay

# Context, Policy Reform, and Rationale

- Promoting school education historically a high priority for Indonesia
  - 2000-02: new constitution committed 20% of budget to education
- Teacher Law (2005): teachers passing eligibility criteria and certification process to receive allowance equiv. to 100% of base pay
  - Initially included high-standard external assessment of knowledge and practice, but watered down after negotiations
  - Reform moved pay from 50th to 90th percentile of college-graduate distribution (prereform benefits also already generous)
- Rationale
  - Ideas: people thinking salary increase  $\implies$  better education
  - Interests: teacher unions advocating effectively
  - Institutions: spending floor under new constitutions

# Experiment

- **Design:** treatment allows otherwise eligible teachers in treatment schools to enter certification process early vs. wait at control schools
  - Only  $\sim 10\%$  of teachers allowed to undergo certification process yearly
  - 3 waves of data collection interviewing teachers and students
- **Sample:** 20 districts, each with 6 treatment and 12 control schools
  - Randomly sampled from 360 schools covering 85% of Indonesian districts and over 90% of population, stratified by region
- **Validity:** no public announcement of additional quota at treatment
  - Experiment did not displace education spending in the districts from control to treatment, or displace teachers from certification
  - Within treated schools, only ineligible teachers not treated
  - Evidence for balance in student and teacher characteristics

# Results

- Fraction of self-reported certified target teachers in treatment is 43 (24) pp higher by the end of Y2 (Y3)
  - ITT effects include teachers not eligible at start of experiment
- **Teacher-Level Outcomes:** treatment school teachers receive 112% (72%) more certification pay by the end of Y2 (Y3)
  - More satisfied with total income, less likely to report facing financial stress or holding 2nd job, and working less hours at 2nd job
  - No difference on teacher test scores, likelihood of pursuing further education, or self-reported absence rates
- **Student Outcomes:** no impact on scores of being in a treated school
  - Adequate power to detect effects as low as  $0.05\sigma$  at 5% level
  - No significant treatment effects at any part of score distribution and by type of teacher relative to control (ruling out offsetting)

# Cost Effectiveness and Policy Implications

- De Ree (2016) estimates  $1\sigma$  increase in teacher test score predicts a  $0.175\sigma$  a year increase in student value-added
  - Extensive margin effect after replacing all current teachers is  $0.175\sigma$  yearly increase in test scores at cost of US\$ 138/student/year
  - Compare to  $0.15\sigma$  gain at US\$ 4/student/year through performance-based bonus pay program in India
- Other concerns over across-the-board salary increases
  - 1 Short- and medium-term benefits depend largely on intensive margin
    - 7% discount rate  $\implies$  intensive margin effects have 3x weight for PDV
  - 2 Talent displaced from other sectors and made less productive
  - 3 Linking pay to performance likely more effective on extensive margin

# Conclusion

- Effects of unconditional salary increase especially important in public-sector context without market test of cost-effectiveness
  - Especially worrying given wages of public-sector workers typically not correlated with productivity in developing countries
  - Increase in salaries was a transfer w/o improvement in productivity
- Comments
  - Alternative measures of effort, i.e. verified absence rates?
  - Hard to fully interpret comparison with performance-based pay program in India without comparison of mean baseline achievement
  - Lockwood et al. (forthcoming) argue traditionally high-paying professions have negative externalities, whereas low-paying ones have positive externalities