

The presence of social barriers may restrict information transmission if the agent and potential recipient are from different social classes.

## PERFORMANCE PAY IN THE PUBLIC SECTOR: TWO FIELD EXPERIMENTS FROM INDIA

Performance pay is common in the private sector, yet surprisingly rare in the public sector. One reason for this may be that there is little evidence on the effects of performance pay in improving public service delivery. Others include a lack of profit incentive on the part of the decision maker, potential resistance from unions and implementation issues. Field experiments have played an important role in determining the extent to which incentive pay can improve performance. **Karthik Muralidharan** (University of California, San Diego) and **Erlend Berg** (Oxford) presented the findings of two such experiments recently conducted in India.

### Public health information

Whilst much attention has been devoted to the supply side, comparatively few studies have considered frictions on the demand side. Berg et al. postulate that the intended recipients often do not have sufficient information to take advantage of public services. The paper seeks to ascertain whether performance pay is able to enhance the dissemination of information through knowledge agents. (A knowledge agent is an individual employed to spread information about public services to the eligible audience.) The presence of social barriers may restrict information transmission if the agent and potential recipient are from different social classes. The authors explore whether social barriers inhibit information transmission and the extent to which financial incentives may be used to overcome this obstacle.

The service considered is a public-private health insurance scheme for the poor. The experiment was conducted across 151 villages in the southern district

of Karnataka. A knowledge agent was employed in 112 randomly selected villages with instructions to disseminate information about the scheme to eligible households. All knowledge agents were local females. There were two randomly assigned employment contracts: a flat-pay contract and a performance pay contract. Performance was ascertained through testing a random selection of eligible households. Data on program knowledge, take-up and household characteristics were collected in three post-intervention surveys. From this information, the authors construct a measure of social distance between household and agent based on wealth, education and caste.

The study finds that knowledge agents only improve information dissemination if their remuneration is performance related. Take-up and knowledge are positively associated, suggesting that information costs impede demand. Finally, social distance restricts information transmission, though performance pay counteracts the effect.

### In the classroom

Arguably the most important form of information dissemination occurs in the classroom. Much debate has centred on the most cost effective means of improving education delivery. Traditional policies include reducing class sizes or increasing teachers' wages in order to attract higher calibre applicants. However, performance related incentives are relatively uncommon. Using data from a field experiment conducted across 300 primary schools in the state of Andhra Pradesh, Muralidharan considers the impact of performance pay for teachers on test-scores from independently administered maths and language tests.

Schools were randomly allocated to one of three groups: a control group, a group in which teacher pay depended on the average score of their class, and a group in which teacher pay depended on the average score of their school. The experiment ran for five years, providing data on the impact of performance pay for cohorts exposed for the duration of their primary education.

In the fourth year of the study, the incentives were randomly removed in half

of the schools. The existence of test-score decay implies that the net and gross effects of an intervention are not equivalent. Whilst the net effect is obtained through comparing the scores of the treated group and the control group, the gross effect is obtained by comparison of the treated group and the discontinued group. The random removal of incentives permits estimation of the gross effect in addition to the net effect.

The study finds that for the cohort who completed their entire primary education under the scheme, class-level performance pay lead to net gains of 0.54 of a standard deviation for maths and 0.35 for language. Moreover, performance improved in non-incentive subjects such as science and social studies. The gross effects were estimated at 0.17 and 0.11 standard deviations per year for maths and language respectively.

School-level performance pay resulted in net gains of 0.12 and 0.14 standard deviations respectively, indicating that group incentives are weaker than individual incentives. Comparing his findings to other studies, Muralidharan estimates that the adoption of class-level performance pay is around 15-20 times more cost effective than reducing class sizes.

### Conclusion

Together, the papers suggest that performance pay is an effective means of improving public service delivery in the contexts studied. The applicability of these results to other contexts is less clear cut. A potential concern is that performance pay may lead to undesirable behaviour. For example, a teacher may choose to focus his attention on borderline students at the expense of others or a parent may respond to improved teacher performance by investing less effort in their child's education. Whilst the findings are encouraging, these considerations merit further attention.

### Papers

[Berg, E., Ghatak, M., Manjula, R., Rajasekhar, D., Roy, S., \*Motivating Knowledge Agents: Incentive Pay vs Social Distance\*, Working Paper.](#)

[Muralidharan, K., \*Long Term Effects of Teacher Performance Pay: Experimental Evidence from India\*, Working Paper.](#)



## POLICY PANEL

### PUBLIC SERVICES IN DEVELOPING COUNTRIES: WHAT HAVE WE LEARNT FROM FIELD EXPERIMENTS AND WHAT REMAINS TO BE LEARNT?

The conference concluded with a policy panel discussion. The topic under consideration was the contribution of field experiments to our knowledge of what works in developing countries' public service delivery. **Sonia Bhalotra** (CMPO) chaired the panel, which consisted of **Jishnu Das** and **Jed Friedman** (both Senior Economists at the World Bank) and **Marcos Vera-Hernandez** (UCL).

Das commenced the discussion by presenting short summaries of his recent work on the education sector in Pakistan and the healthcare sector in India, before then considering how these projects illustrate the substantial benefits of field experiments. Developing countries offer an invaluable opportunity to study public service delivery because one often finds market structures that simply do not exist in OECD countries.

Das highlighted three aspects of developing countries' public services: market determined pricing in private schools and health clinics; closed markets in schooling; some de jure but almost zero de facto regulation. Das also argued that these markets are unlikely to resist regulation or subsidisation for long hence the current opportunity to study how health and education markets react to changes in institutions could be immensely fruitful for academic research. Ironically, it is the simplicity of the village economies being analysed that allows economists to deploy more sophisticated models that interact demand and supply responses to variations in market structure.

Nonetheless, conducting such studies is not easy. Das and other speakers at the conference highlighted the lack of quality administrative data in developing countries as the primary constraint for researchers. Karthik Muralidharan (University of

California, San Diego) echoed this point, arguing that good quality data collected by universal service providers could make randomised control trials immeasurably easier and thus reap substantial benefits.

Muralidharan also spoke of his frustration at the level of disconnect between academic research and the policy agenda. In particular, Muralidharan highlighted the dominance of public sector provision of education in the development discourse. The research largely shows that public sector provision is so poor that governments can't even give public schooling away for free, while demand for private sector schooling has increased exponentially in the last two decades, yet the solutions offered by policymakers usually involved greater public provision. Das argues this disconnect will continue as long as researchers work and live so far away from where policy decisions are actually being made. The demand for evidence from policymakers might be puzzlingly low, but so too is the appetite among academics to go and work in policy.

Jed Friedman then presented a staunch defence of performance related pay (PRP) in developing countries. Friedman noted that the concept of PRP has come under attack in recent years, in particular because of counter-productive effects on intrinsic motivation found in lab experiments (Deci, Koestner and Ryan (1999) provide a meta-review). Daniel Ariely has been one of the most prominent critics of such payment structures, analogising that offering a dinner party host \$10 for cooking a wonderful meal isn't likely to lead to further invitations.

However, as Friedman pointed out, while this analogy might be entertaining, it doesn't particularly translate well to the labour market environment in developing countries. Unlike Ariely's dinner party host, public sector employees are already being incentivised to work, they are just receiving wages instead of bonus payments. Friedman also pointed out that the majority of the lab experiments that showed extrinsic rewards crowd out intrinsic motivation compare PRP to no payment at all, whereas the choice available to policymakers is PRP versus some other system of payment.

In fact, Deci Koestner and Ryan's meta-review found PRP to have the

least detrimental effect on intrinsic motivation of three payment systems examined. Friedman argues that more research is needed on PRP in the public sector, especially regarding long-term dynamic effects such as crowd-out or even potential crowding-in of intrinsic motivation. Lab experiments on rich Western psychology undergraduate students are unlikely to capture the thought process of public service workers in developing countries hence further field experiments are needed.

A Zambian clinician had this to say about PRP: *"I like this new program because it makes me feel that the people in charge of the system care about us."* This clinician worked in a facility that rarely received supervision, was 25 per cent likely to have no functioning water source, regularly ran out of key medicines, offered low salaries and suffered high rates of staff turnover. Friedman proposed that in such difficult circumstances, the paid incentive might be perceived by the worker as an expression of appreciation and confidence.

Marcos Vera-Hernandez concluded the conference with some suggestions for future research. While interventions designed to spread knowledge often had desirable outcomes, economic research generally struggles to explain why these effects often decay (Chetty et al 2011). Vera-Hernandez suggested that further studies into why some effects endure could be particularly useful for development economists.

#### Papers

Chetty, R., Friedman, J. N., & Rockoff, J. E. (2011), *The long-term impacts of teachers: Teacher value-added and student outcomes in adulthood* (No. w17699). National Bureau of Economic Research.

Das, J., Holla, A., Das, V., Mohanan, M., Tabak, D., & Chan. B. (2012), *In Urban And Rural India, A Standardized Patient Study Showed Low Levels Of Provider Training And Huge Quality Gaps*. *Health Affairs*, 31(12), 2774-2784.

Deci, E. L., Koestner, R., & Ryan, R. M. (1999), *A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation*. *Psychological bulletin*, 125(6), 627.

Woolhandler, S., Ariely, D., & Himmelstein, D. U. (2012), *Why pay for performance may be incompatible with quality improvement*. *BMJ: British Medical Journal*, 345.

Das, J., Andrabi, T., Ijaz Khwaja, A., (2013) *Report Cards: The Impact of Providing School and Child Test-scores on Educational Markets, Working Paper*.