

Teacher Performance Measurement and Management

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J-PAL USAID Early Grade Reading Workshop

New Delhi, 26 July 2012

Agenda

Background / motivation

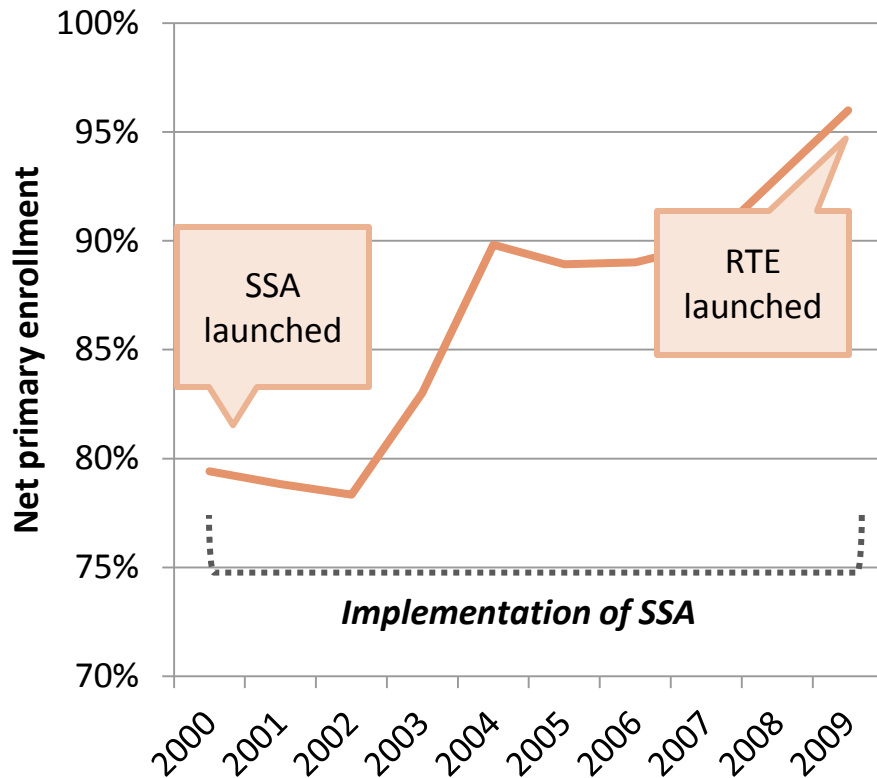
Summary of Research Findings

Policy Recommendations

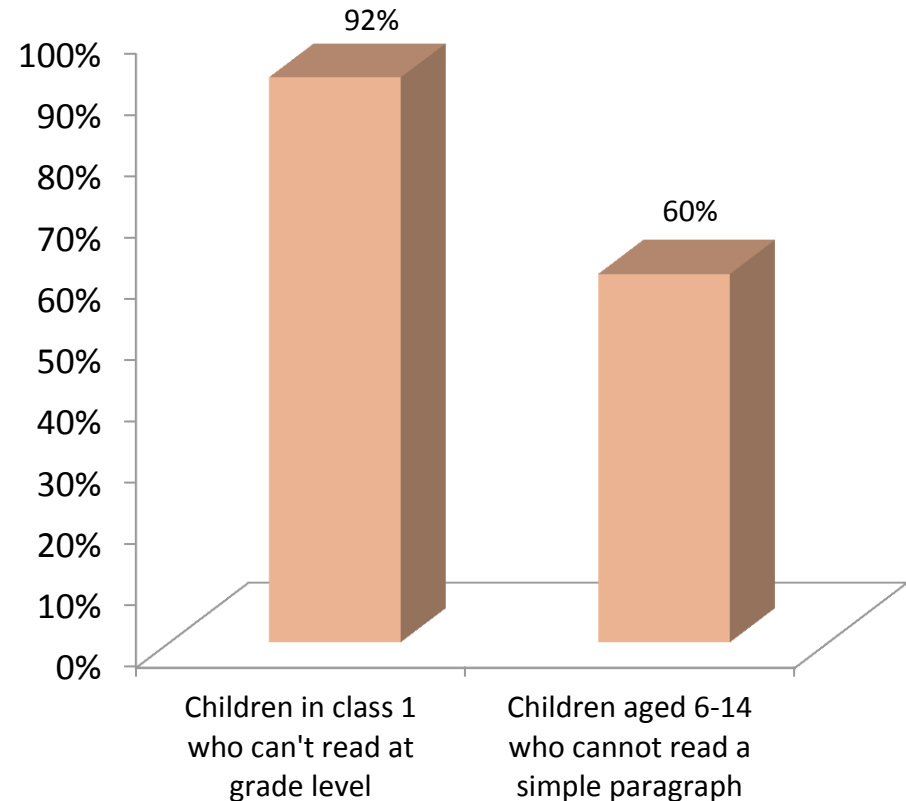
Moving to Implementation

Progress on Elementary Education in the Past Decade has been Mixed

Enrolment figures are pleasing



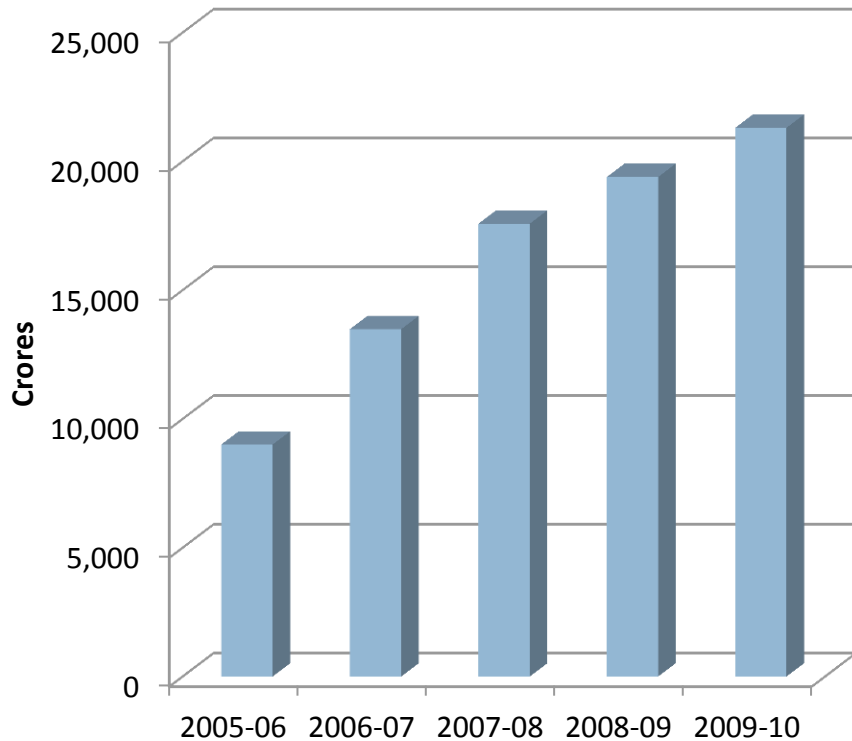
But children are not learning



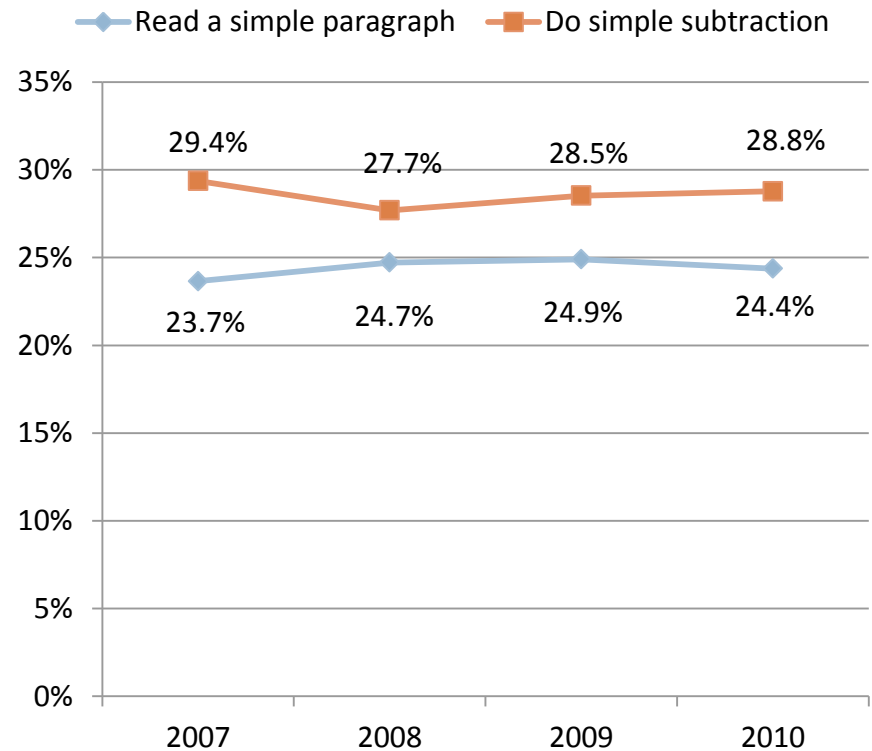
Source: Data for 2000-2007 – World Bank; data for 2009 – ASER. Definitions may be slightly different. No data for 2008 – extrapolated as mid-point of 2007 and 2009 figures. RHS: ASER

Increased expenditure alone is unlikely to improve learning

Expenditure under SSA




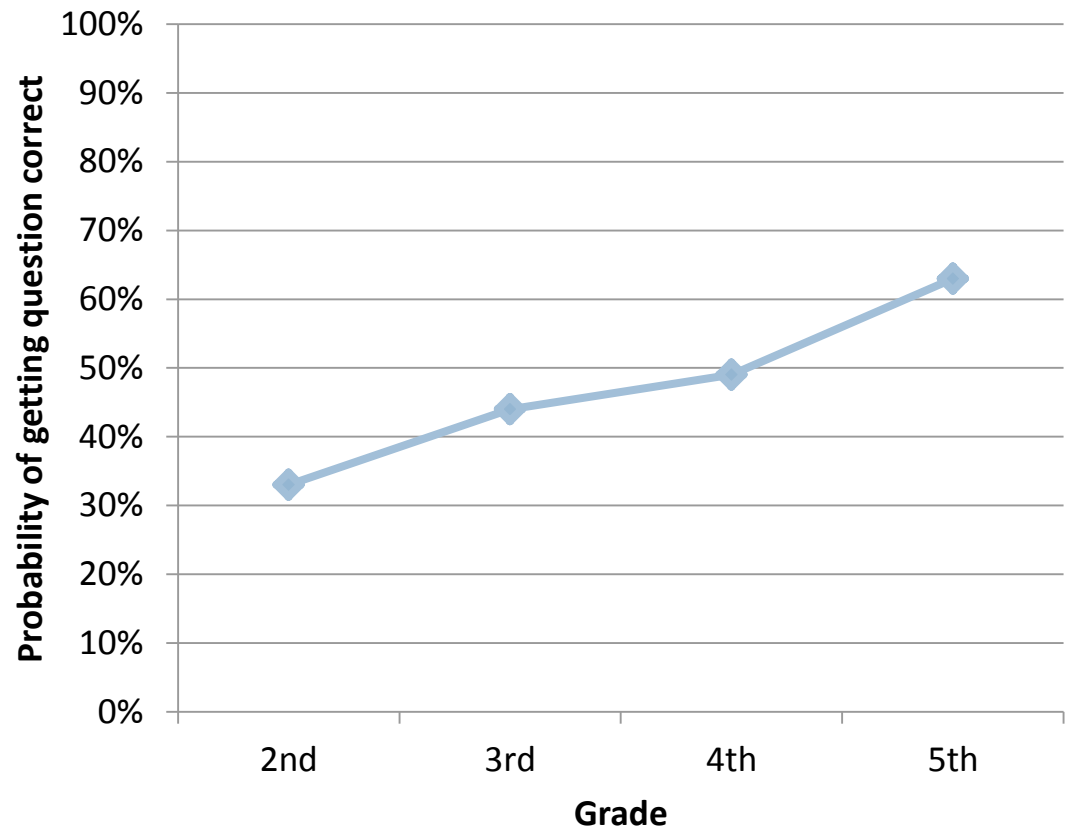
Children aged 8-10 who can...



Learning levels *and trajectories* are both very low

Less than half the students who don't know single digit addition in 2nd grade, learn it by the end of 5th grade!

$$\begin{array}{r} 8 \\ +9 \\ \hline \hline \end{array} = ?$$




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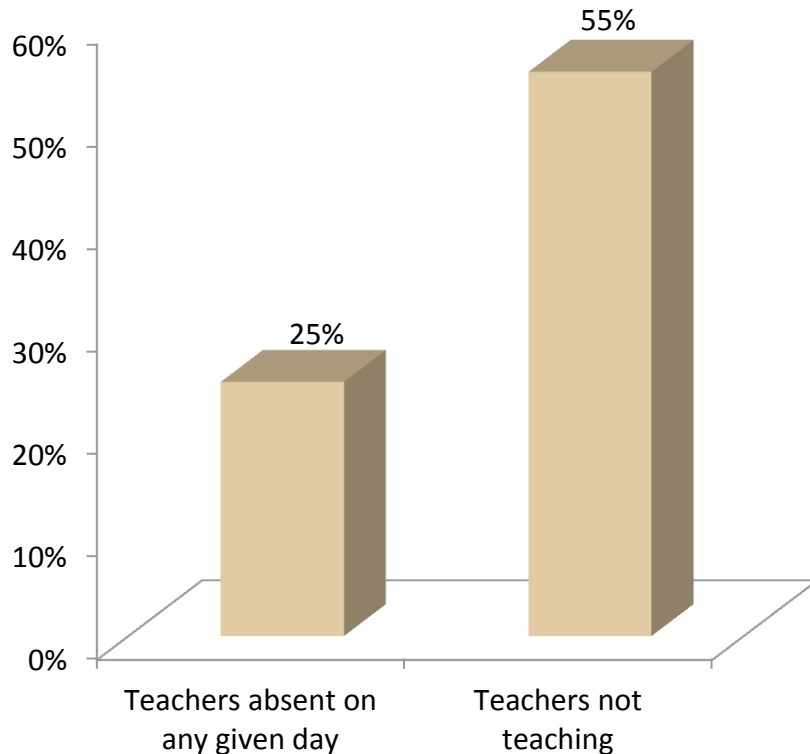
Moving to Implementation

School Inputs

- Infrastructure
 - No evidence finding that improving school infrastructure improves learning outcomes
 - Makes schools 'nicer' but what matters is actual teaching
 - Infrastructure may not be getting used (toilets, libraries)
 - Have to evaluate over the depreciation life-cycle of the investment
- Teachers (quantity and 'quality')
 - No evidence whatsoever that a 'trained' teacher does better than an untrained one
 - Limited evidence on impact of reducing class-size/PTR
 - Content of training; utilization of training
 - Effort substitution
- Student inputs (unconditional grants, mid-day meals, etc.)
 - Some evidence that these improves enrollment, but no evidence to suggest positive impacts on learning outcomes (possible reason is substitution of spending/effort)
- Not saying that inputs don't matter – but unlikely on their own to improve learning outcomes substantially. Hence the need to focus on pedagogy (previous two sessions) and governance (this one)

Governance: Teacher Absence and Monitoring

Motivation and effort-levels of government school teachers in India are a serious problem



- High levels of teacher absence (25%) ranging from 15% to 42% across states (in 2003)
- 90% of non-capital spending goes to teacher salaries
- Muralidharan et al (2012) find modest changes in absence (26.3% to 23.7%)
- Much less so than on infrastructure
- Monitoring really seems to matter

Governance: Contractual Structure

- The use of contract teachers is probably the most prominent policy innovation in primary education in the past 15 years in India and other developing countries
- The use of contract teachers is highly controversial
 - Proponents point to cost effectiveness, superior incentives, ties to community
 - Opponents claim that contract teachers are unlikely to improve learning outcomes (concerns include lack of training, low motivation, and possible local elite capture)
- No evidence to support this view (that contract teachers are less effective)
 - Muralidharan & Sundararaman 2012
 - Atherton & Kingdon 2011
 - Goyal & Pandey 2011
 - Several studies on remedial instruction
 - If anything, point estimates suggest that they may be *more* effective
- Possible mechanisms include better incentives, connection to local area, more empathy with local students, lower marginal cost of attendance

Governance: Performance-Linked Pay for Teachers

- Fundamental determinant of school performance is the effectiveness of teachers which can be improved by:
 - Hiring higher-quality teachers (better pay and working conditions?)
 - Increasing the effort of existing teachers (link pay to performance?)
- Strong evidence to support the latter in the context of education in India by:
 - Muralidharan & Sundararaman (2011)
 - Duflo, Hanna, and Ryan (2012)
 - Muralidharan (2012)
- Key implementation principles:
 - Impersonal administration based on objective measures as opposed to supervisor-mediated incentives (teachers in Kenya, nurses in Rajasthan)
 - Mixed evidence on community-based programs (works when the community has real authority over schools and teachers)
 - Increasing student demand for education can also improve teacher performance (girls' scholarships in Kenya)

Performance Pay : Background and Research Questions

Motivation

- Lack of differentiation by performance is a major demotivator for teachers
 - Teachers with highest job satisfaction were most absent
 - Almost nothing in a teacher's professional life depends on performance
- Program was designed to recognise and reward good performance

Key questions addressed

1. Can teacher performance-pay improve test scores?
2. What, if any, are the negative consequences?
3. How do group and individual incentives compare?
4. How does teacher behaviour change in response to the bonuses?
5. Do different types of teachers respond differentially to the bonuses?
6. What is teacher opinion on performance pay?

Potential concerns with such a program are addressed pro-actively in the study design

Potential concern

How addressed

Reduction of intrinsic motivation

- Recognize that framing matters
- Program framed in terms of recognition and reward for outstanding teaching as opposed to accountability

Teaching to the test

- Less of a concern given extremely low levels of learning
- Research shows that the process of taking a test can enhance learning
- Test design is such that you cannot do well without deeper knowledge / understanding

Threshold effects/
Neglecting weak kids

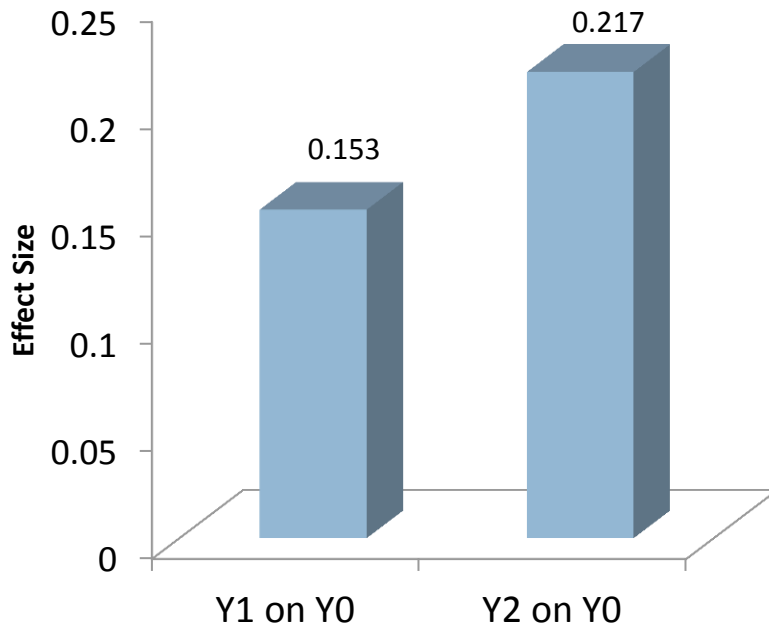
- Minimized by making bonus a function of average improvement of all students, so teachers are not incentivized to focus only on students near some target
- Drop outs assigned low scores

Cheating / paper leaks

- Testing done by independent teams from Azim Premji Foundation, with no connection to the school
- Bonuses are quite small (3% of annual pay) – may not be worth loss of face/reputation to cheat

Bonus schools perform better across the board

Outcomes for bonus schools relative to control schools

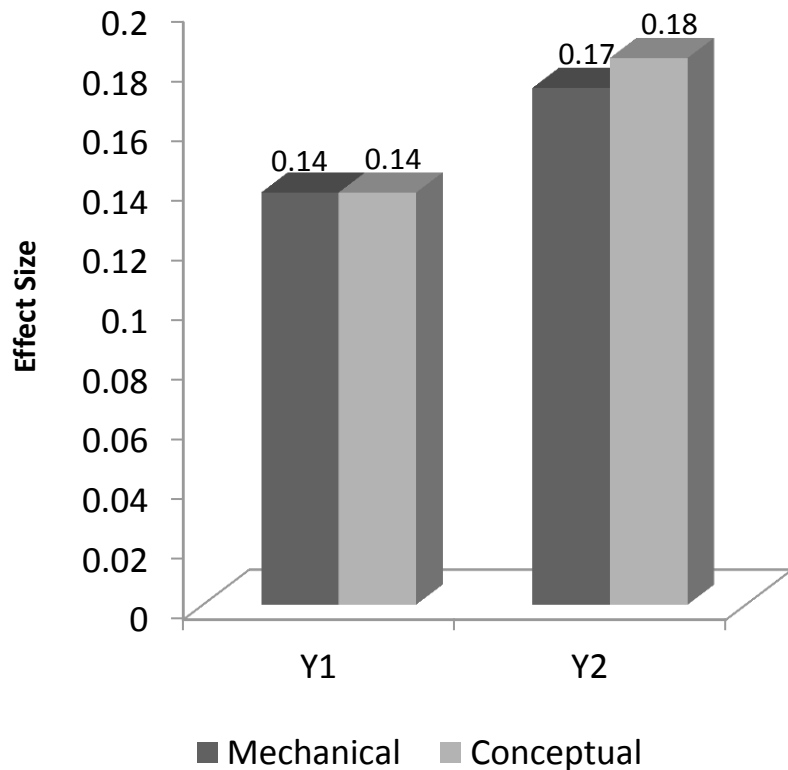


- Students in ***bonus schools do better for all major subgroups***, including: all five grades (1-5); both subjects; all five project districts; and levels of question difficulty
- ***No significant difference by most student demographic variables***, including household literacy, caste, gender, and baseline score
- Lack of differential treatment effects is an ***indicator of broad-based gains***

Overall, almost every child in an incentive school performed significantly better than comparable children in control schools

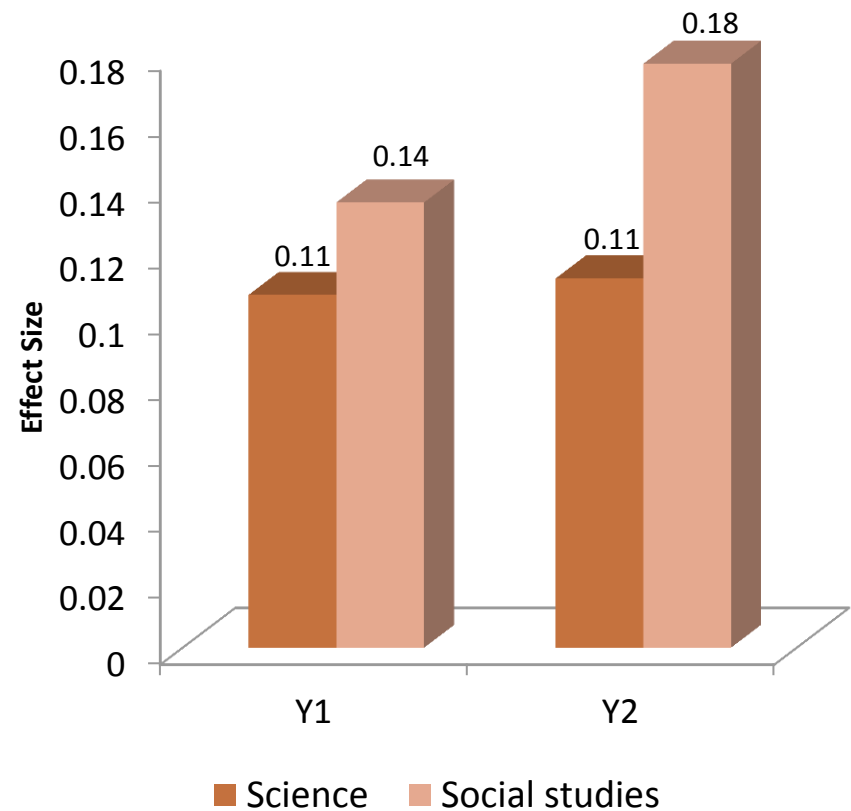
Incentives have broad-based impact

True learning: Bonus students perform better on conceptual, not just mechanical questions



Normalized by mechanical / conceptual distribution in control schools
All figures statistically significant

Spillovers: And they also perform better on non-incentive subjects



Normalized endline scores grades 3-5 only
All figures statistically significant

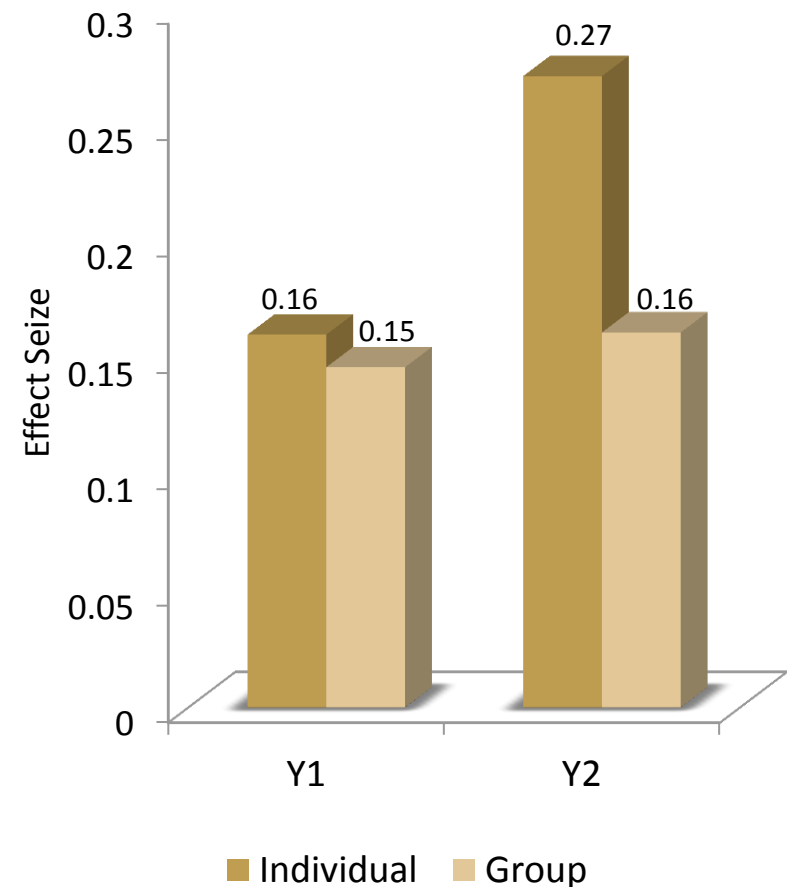
Individual incentives versus group incentives

In theory...

- The theory on group- versus individual-level incentives is ambiguous
 - On the one hand, group incentives may induce less effort due to free-riding
 - On the other, if there are gains to cooperation, then it is possible that group incentives might yield better results

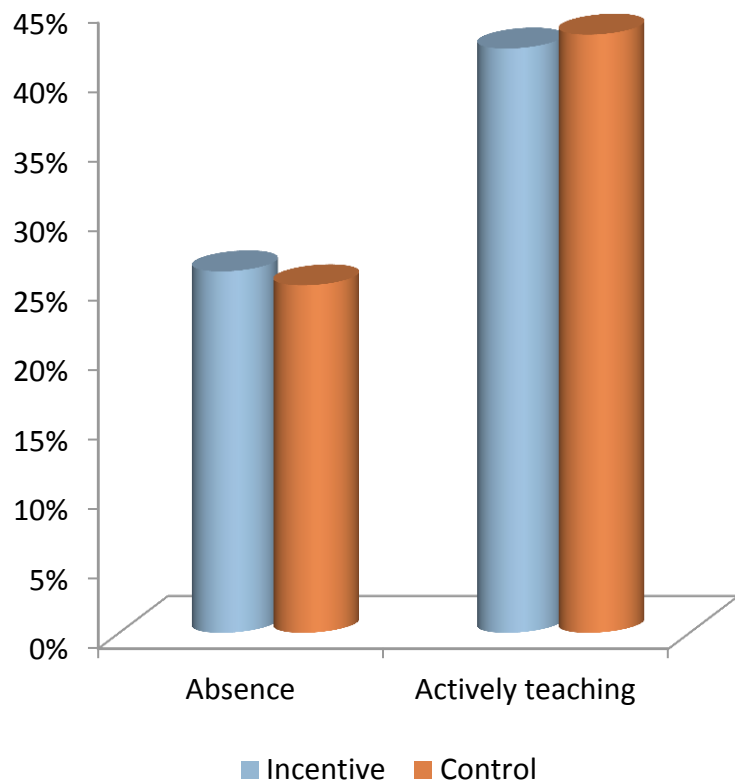
Our findings...

- Both group and individual incentive programs had significantly positive impacts on test scores in both years
- In the first year, they were equally effective, but in the second year, the individual incentives do significantly better
- Difference grows over longer time horizons

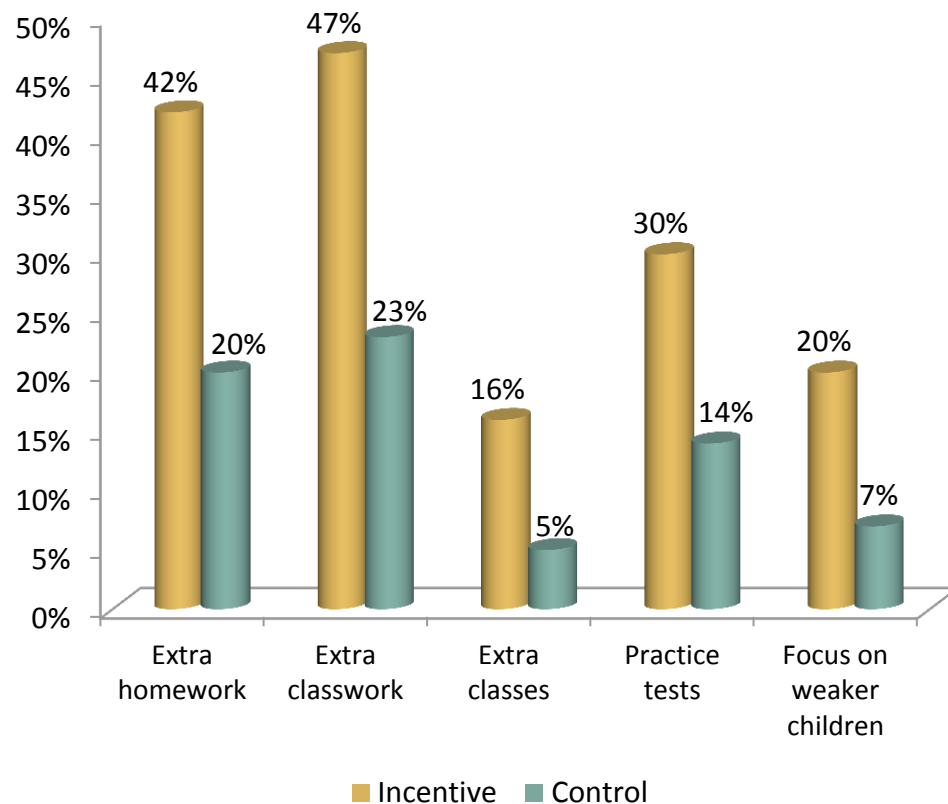


Teacher absence did not change, but effort intensity went up

Incentive teachers did no better under observation...

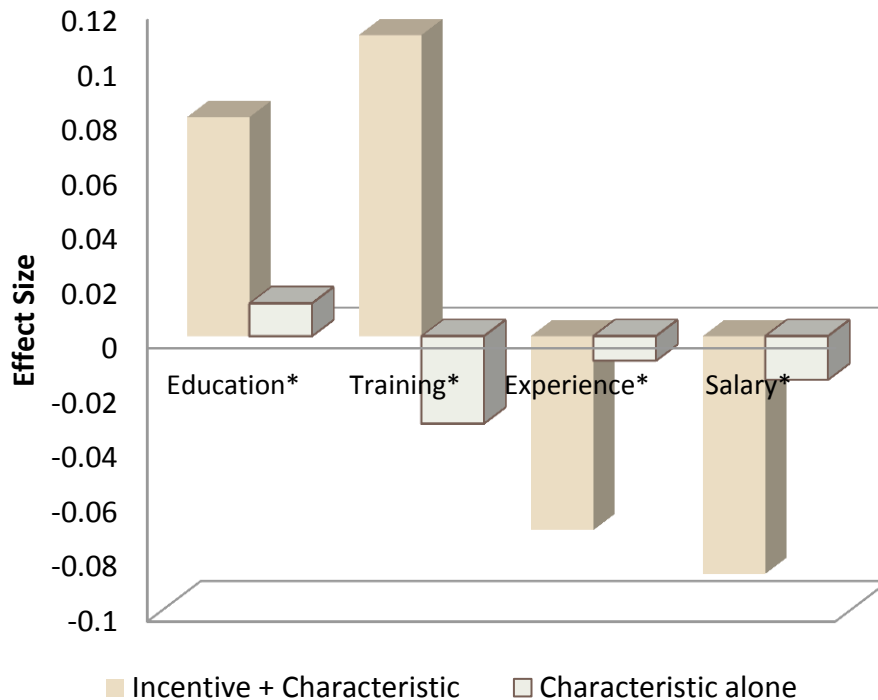


... But report undertaking various forms of special preparation



Incentives act as a force-multiplier to magnify the impact of inputs

Incentives and teacher characteristics



- Teacher education and training by themselves don't seem to matter, but do so when combined with incentives
 - Suggests that **qualifications combined with incentives can impact learning** outcomes
- Teachers with higher base pay respond less well to incentives
 - Suggests that **magnitude of bonus may matter**
- More experienced teachers respond less well to incentives
 - Suggests that **young teachers may respond better** to new policy initiatives

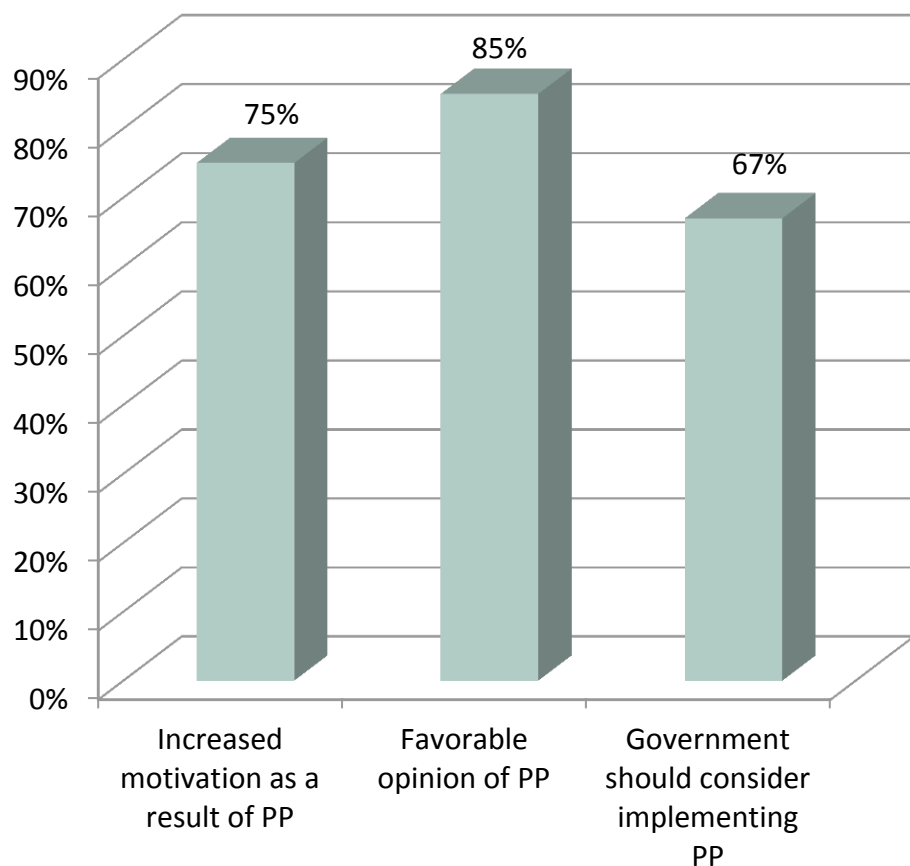
No characteristic is significant on its own

'Experience' and 'salary' have been normalized

* Statistically significant in combination with incentive

Teacher opinion on performance pay is overwhelmingly positive

Strong teacher support for performance pay



- It is easy to support a program when it only offers rewards and no penalties
- However, teachers also **support performance pay under an overall wage-neutral** expectation

- But – they say that they trust the program when it is implemented by the Azim Premji Foundation, but would not be sure if integrity can be maintained if implemented by government
 - Suggests that **there may be a long-term role for non-profits** or credible third parties in working with governments to implement such ideas

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Policy Recommendations

Moving to Implementation

1. Make Learning Outcomes a Central Goal of Education Policy

Should be obvious based on what we've seen

- But no mention of learning outcomes in MHRD's RFD
- "Quality" does have a 24.5% weight (good)
- But completely defined in terms of more inputs – especially teacher training (no evidence that this will have any impact)

Common stated reasons for not doing this

- Testing is stressful for children; schooling needs to be joyful
- Too much testing in India anyway (narrows thinking); need less testing
- Government cannot be held responsible for outcomes, only inputs

Straightforward Responses

- Assessment *of* learning vs. assessment *for* learning
- Optimal policy is different based on levels of learning (Lazear 2006)
 - At low levels of learning, basic and higher order skills are complements and not substitutes
- Not looking at outcomes contravenes spirit of RtE (what does it mean to be educated if you can barely read?)
 - Cannot 'guarantee' outcomes – but at least identify children who need additional resources early and provide it
- Changing the measured goal by itself may catalyze innovations in states and districts on how to achieve improvements

2. Target Instruction to Level of Learning (Curricular Reform and/or Supplemental Instruction)

Low levels and trajectories of learning; Increasing variance

- The hypothesis that best explains the pattern in the data is that teachers are ‘teaching to the syllabus’ => ‘teaching to the top’ (Banerjee & Duflo 2011; Pritchett & Beatty 2012)
- Historical role of education was not so much to build universal human capital, but to select gifted children for state/clergy
- Most consistent explanation of facts – especially the large impacts of remedial instruction with untrained, low-paid volunteers; and no effects of PTR reduction, and ‘business as usual’ inputs in general

Curricular Reform

- Trying to do ‘too much’ may be leading to doing ‘too little’
- May make sense to rethink curriculum (tracking or slow it down)
- But this will take time and effort (difficult to change ingrained habits)

Additional resources for targeted supplemental instruction

- Lowest-hanging fruit (and least likely to engender resistance) is to scale up supplemental instruction programs (after school; summer camps) using locally-hired volunteers on a stipend
- A policy that improves both equity (more resources to those who need it more) and efficiency (reducing variance in classroom helps teachers teach all kids better)

3. Expand the Use of Locally-Hired Contract Teachers (especially for remedial education and maybe ECE)

Contract teachers do no worse (and often better) than regular trained teachers

- Deeply held conventional wisdom that contract teachers are a ‘stop gap’ arrangement that should be eliminated by raising the education budget enough to hire ‘regular trained teachers’
- This view is not supported by the facts - binding constraint appears to be not qualification or training, but pedagogy, and effort

Many benefits of expanded use of CT’s

- Create ‘white collar’ jobs for educated unemployed rural youth
- Improve women’s empowerment (majority of CT’s are young women)
- Teachers more connected to community (parallel lessons in health)
- Can hire many CT’s for cost of 1 RT and improve learning much more

Objections to expanded use of CT’s

- Short-run benefits, but de-professionalizes education in long-term
- Two-tier workforce is exploitative (legal challenges)
- Political economy concerns (pressure for ‘regularization’)

Most objections can be addressed by having a career ladder (see next slide also)

- Hire all new teachers as CT’s as an entry-level position
- Promote to regular teacher based on performance (in 5-7 years)
- Tenure-track as opposed to ‘permanent adjunct’ model
- Include training and professional development each summer

4. Invest in Governance (especially Teacher Performance Measurement & Management)

Teacher Quality Really Matters

- Specifically – there are significant differences in ‘value added’ across teachers, which are quite stable over time (around the world)
- BUT being a ‘good teacher’ is NOT correlated with observable traits like qualification, training, gender, or experience

“Value Added” has real content – not just a statistical construct

- Chetty, Friedman, Rockoff (2011) match annual value-added data from 2.5 million school children to long-term outcomes (20 years later)
- Strong positive impact of a high-value added teacher on long-term outcomes (college, wages, teen pregnancy, quality of neighborhood)
- Replacing bottom 5% of teachers with an ‘average’ one would increase lifetime income of students by \$300,000

Two ways to improve teacher quality

- Selection margin (‘quality’ of teachers in the workforce)
- Effort margin (continuous high effort – also to acquire teaching skills)
- But selection on observable traits does not work (status quo) – so need to measure quality ‘on the job’

Career-ladder works on both the selection and effort margins

- Reduces entry-barrier to joining teaching (training != quality)
- But raises the retention barrier (no ‘tenure’ if you are not good)
- Recognizes and rewards excellence (raises, promotions, leadership)
- Identifies weak teachers for training, coaching, counseling)

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Provide States with Much More Autonomy (and Budget) to Innovate; Facilitate Evaluation & Replication

**Implementation is
a tactical issue not
a strategic one**

- Needs to account for local conditions and optimize accordingly
- Makes sense to provide states with autonomy on both how they implement specific initiatives and to innovate with new ideas

**RtE (and most CSS)
have this exactly
backwards**

- The mandates on uniformity are especially worrying
- Conceptual problem: Could be making a well-intentioned mistake
- Empirical problem: all these mandates are based on inputs

**Use States as
Laboratories for
Innovation and
Experimentation**

- 28 settings for experimentation with new ideas
- Indian states are huge (top 10 states in top 25 countries in the world) and have the economies of scale for autonomy on most issues
- Different political leaders, priorities, coalitions, and ideas mean that more things will get tried (Bihar, Gujarat, Tamilnadu examples)
- Locus of political accountability is increasingly at the state-level (strong incentives to learn from others and to copy good ideas)

**Change structure
of Centre-State
relations**

- Move from mandating and policing to learning and sharing
- Reflect conventional wisdom in guidelines and not mandates
- Monitor outcomes and tie some funding to improvements

Summary of Implementation Roadmap for 12th Plan

Business as Usual is NOT Working

- Large increases in spending and all major inputs
- No impact of these improvements on learning outcomes
- Input-focused approach unlikely to work without parallel work on reforming pedagogy and/or governance

Do the Easy Things First

- Recommendations are in increasing order of difficulty
- No good reason to not make the 12th Plan focus on learning outcomes
- Lots of evidence to support supplemental targeted instruction

Encourage district/block level experiments for larger changes

- Status quo could be misguided; but so could these recommendations!
- Key is to reduce the risk of experimenting with new ideas
- Competitive Federalism is a big strength for India (in many areas)
- Need to encourage and not stifle innovation

Immediate Action Items for 12th Plan

- Make learning outcomes the motivating goal for the 12th Plan
- Provide untied flexible funds to states for innovation
- Monitor fund use and outcomes
- Facilitate sharing of research and best practices across states

Implications for USAID EGR Initiative in India

- Can play a highly leveraged role in supporting innovative ideas for achieving these goals, evaluating them, sharing results, and supporting scale ups
- Specific areas to encourage/support (along the themes of this session) include:
 - High-quality independent measurement and reporting of learning outcomes (especially models that are scalable – perhaps using technology)
 - Crowd-sourcing (perhaps using mobile technology) data on daily school performance
 - Supporting development of state and district-level leadership capacity in using data for better management for improved learning outcomes
 - Supporting third-parties to develop the capacity to implement a teacher performance management system and deploy these in partnership with governments
 - Studying interventions (like training) with and without teacher incentives
- Especially valuable in a context where procurement and audit rules make it difficult for innovators within government to get the funding/technical support to implement ideas that deviate from conventional wisdom
 - But should also be open to supporting innovations that improve quality in low-cost private schools (who may have better incentives to deploy them)

Teacher Performance Measurement & Management: A Practitioner's Perspective

Gulzar Natarajan

Collector and District Magistrate, Hyderabad

New Delhi, India | July 26, 2012



USAID
FROM THE AMERICAN PEOPLE

ABDUL LATIF JAMEEL
Poverty Action Lab 
TRANSLATING RESEARCH INTO ACTION

Focus Areas for Hyderabad District

- Improving the **effectiveness of classroom transactions**
- **Using data to measure student learning levels** and assess subject-wise, class-wise performance – first step towards accountability and performance measurement
- Enhancing **institutional program management capabilities** – improve the program management and leadership skills of supervisory officials
- Staying out of the **content debate**

Improving Learning Outcomes

- Focus on classroom transaction - Remedial education has to become central to regular classroom instruction – target instruction to the prevailing learning levels
 - Integrate into regular classroom instruction
 - Out of classroom remedial instruction
 - Additional volunteer support
- Focus on early childhood education (ECE) to prepare children for classroom – ECE centers
- Capacity building to impart effective classroom instruction - training-cum-coaching strategy
- Strengthen supervisory mechanisms – use data to inform teachers and supervisors about the current learning levels/outcomes in each class and subject – help focus inspections and reviews on addressing the deficiencies

Training cum Coaching Support Services

- Difficulty with public procurement – need for private/external funding
- Using a private, external agency
 - Classroom instruction quality improvement training for teachers
 - Leadership training for HMs and supervisors

Project Management Support

- Help develop an integrated data management and day-to-day monitoring mechanism of both the quantitative and qualitative dimensions of the project to be available for all stakeholders
- Submit periodic assessment reports, duly consulting all relevant stakeholders, on the progress of Project implementation
- Assist the district administration in day-to-day and strategic management of the project
 - Formulate monthly and weekly action plans (functionary-wise), review action taken reports, and submit reports with specific functionary-wise actionable prescriptions
 - Quantitative reports on progress of interventions
 - Identify procedural and substantive (content/implementation strategy related) deficiencies and lapses in implementation
 - Prescribe specific solutions to any deficiency in consultation with concerned stakeholders
 - Generate actionable circulars and messages aimed at the specific stakeholder

Developing a Monitoring Framework

- What data to collect – help design fields and formats
- Interface to collect data – computers/tablets
- How to analyze the data – analytics to generate reports and monitoring formats
- How to render the data
- How to disseminate the data among supervisory stakeholders – mobile phones/tablets

Assessment/Testing Support Services

- Help design testing material that can be used to do longitudinal assessments
- Develop a Continuous Comprehensive Evaluation (CCE) framework/format
- Help manage test data
- Generate reports that can be used as decision support
- Report cards for parents, teachers, and HMs