BREAD-IGC Virtual Development Course

Education: School Governance

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Why does education matter?

- Human capital is a key determinant of both growth and the ability of individuals to participate in the growth process (inclusion)
  - Mark discussed returns to education in detail

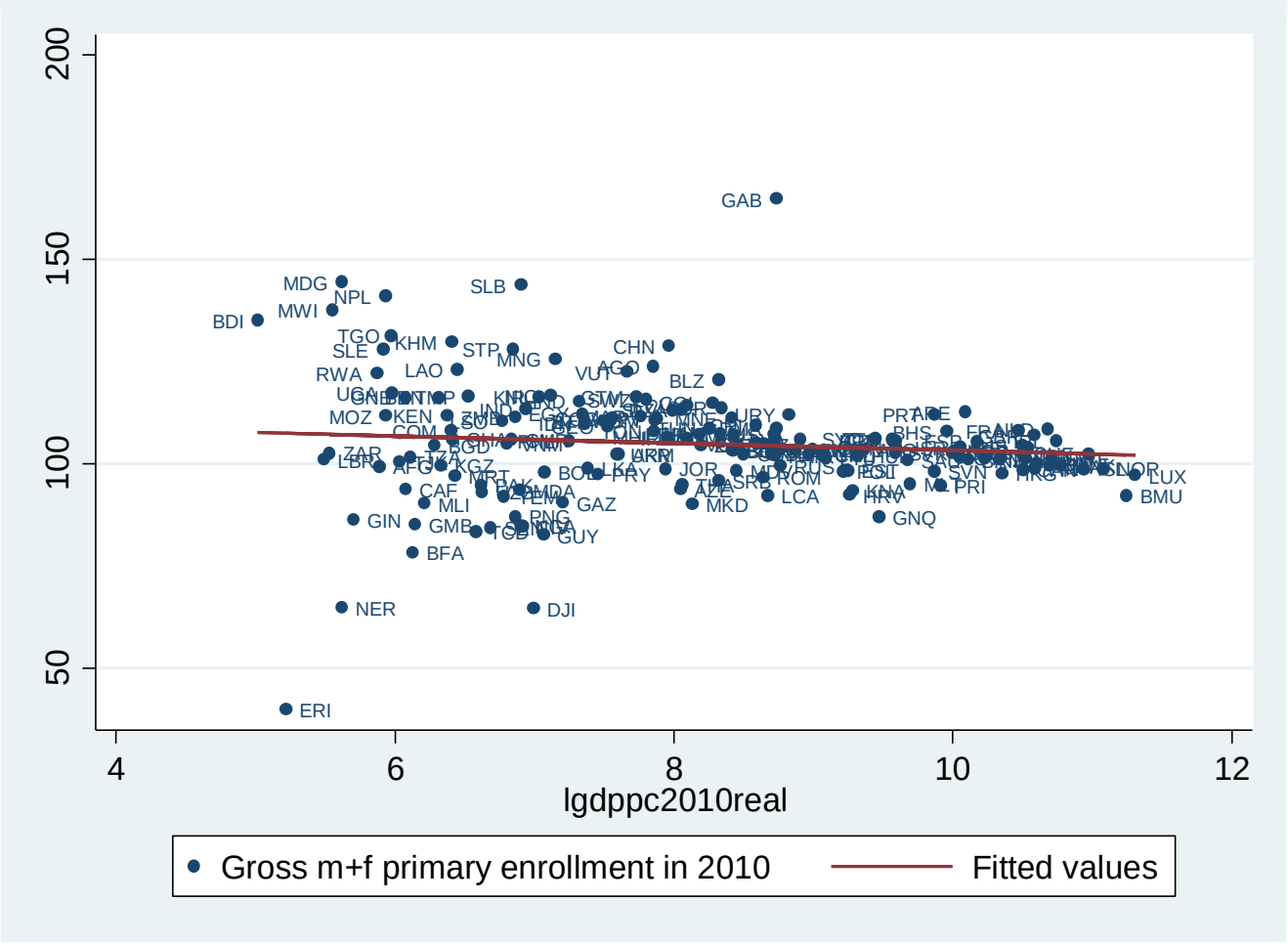
- But education also matters intrinsically – central to Amartya Sen's "capabilities" view of development
  - Allows people to live more empowered lives regardless of economic returns
  - Education (& health) therefore have a special place in development

- Why should there be policy intervention in education?
  - Sub-optimal demand: information, credit constraints, risk/uncertainty, discount rates of parents vs children vs society, spillovers
  - Sub-optimal supply: coordination failures
  - Governments typically run public education systems to address these market failures (but also have other goals – such as preference formation)
  - Education for All (EFA) has been a top global development priority

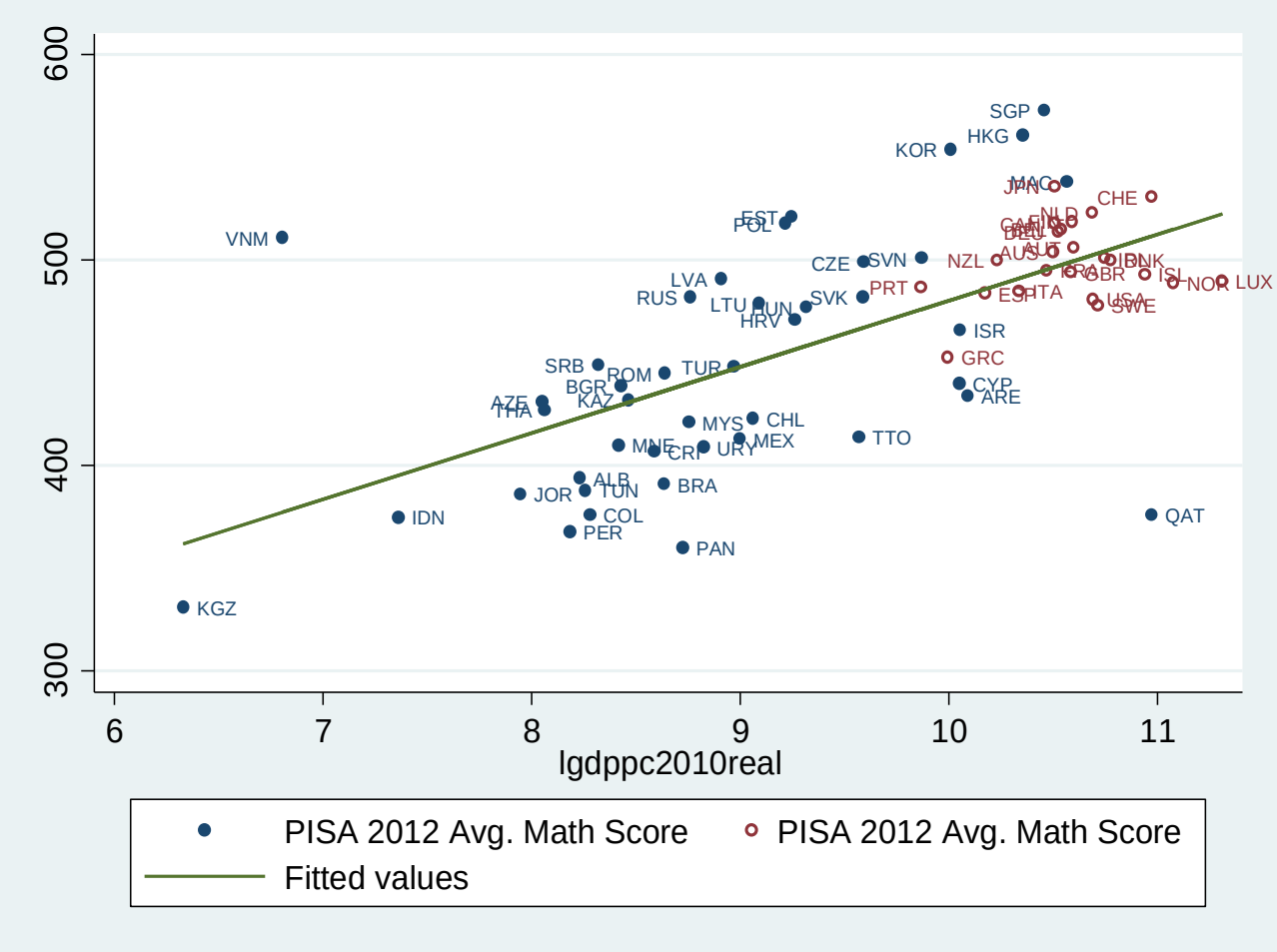
Recap and Plan for next 2 lectures

- Good news: large expansions in education enrollment around the world (partly driven by MDG and EFA goals)
  - School enrolment and completion rates in LMIC's is significantly higher than in OECD countries at a similar level of income
- Less good news: weak translation of inputs (both resources and time) into learning outcomes
  - Though learning is on the income-learning gradient
- Broad determinants of school quality:
  - Inputs and resources (Isaac)
  - Pedagogy (Esther)
  - Governance (today)
  - Technology can potentially alleviate several constraints (tomorrow)
- A note on the readings

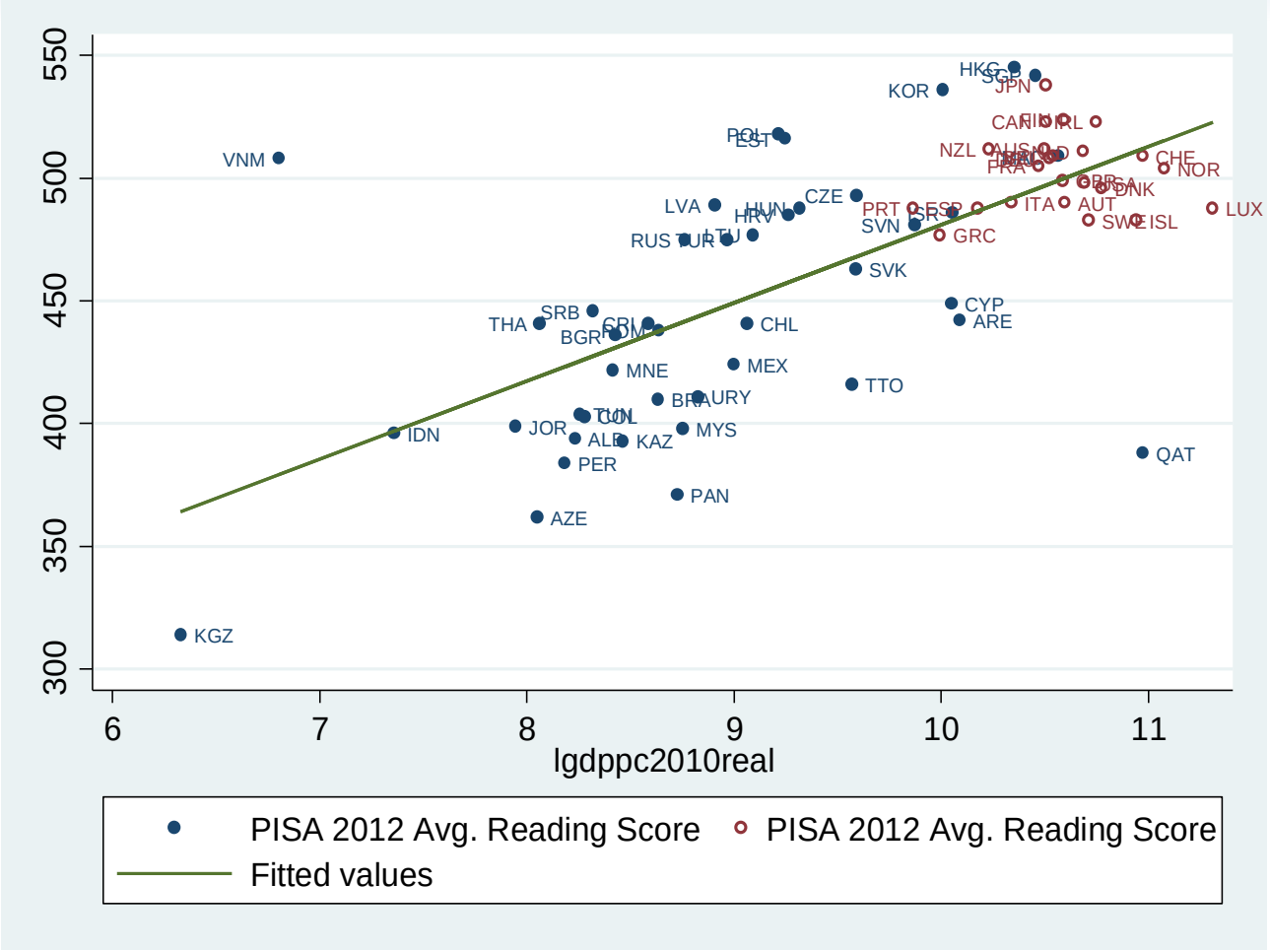
Primary School Enrollment vs. GDP/Capita



Mean Age 15 Math PISA Scores vs. GDP/Capita



Mean Age 15 Reading PISA Scores vs. GDP/Capita



Implications of Figures

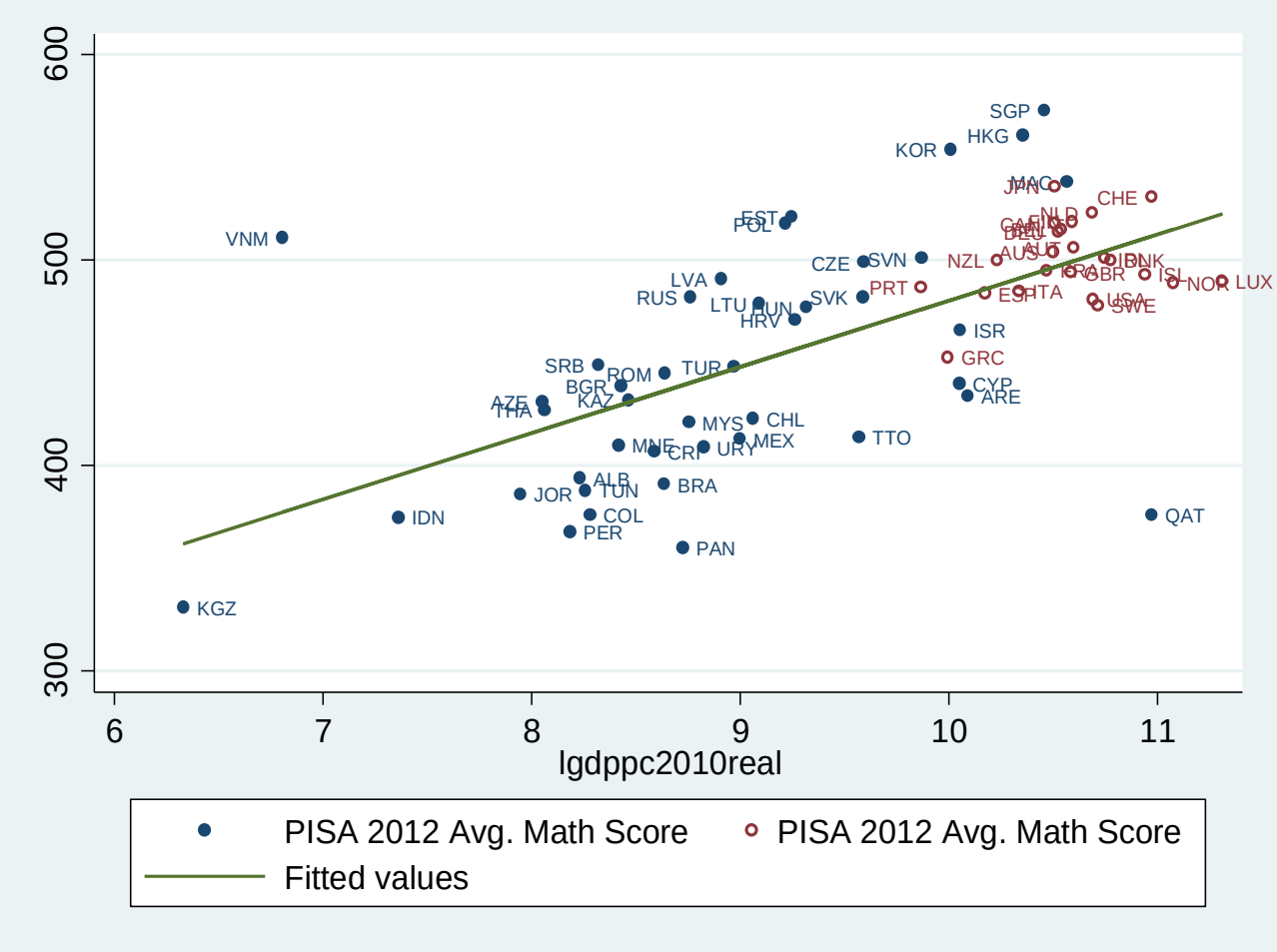
- Glass half empty view is that enrollment is not translating into learning outcomes

- Glass half full view is that low-income countries are performing as expected on learning outcomes but outperforming on enrollment!

- Some historical perspective:
  - US had a GDP/capita of ~$2500 in 1830 (same as PPP-adjusted figures for sub-Saharan Africa today)
  - Primary enrollment rate at that time was 55%, and secondary rates was 1%!
  - Similar results when compared to other OECD countries

- Similar to Deaton (2010) on health:
  - Life expectancy in LIC's today is much higher than in OECD countries at a similar level of GDP/capital (medical innovation; public health)
  - Similar success has been achieved on enrolment, but not for learning

Three ways to proceed



Today: School Governance

- Teacher absence
- Monitoring: top-down & bottom-up
- Teacher pay and teacher incentives
- Contract teachers
- School management (tomorrow)

Chaudhury et al. (JEP 2006)

- Measured teacher absence in nationally-representative samples of schools in 6 countries (other countries added over time by World Bank researchers)
  - Conducted as part of WDR 2004 on "Making Services Work for the Poor"
  - We picked provider absence as an easily comparable metric of governance across countries
  - Absence was anecdotally reported as a problem, so aim was to collect systematic data

Table 1

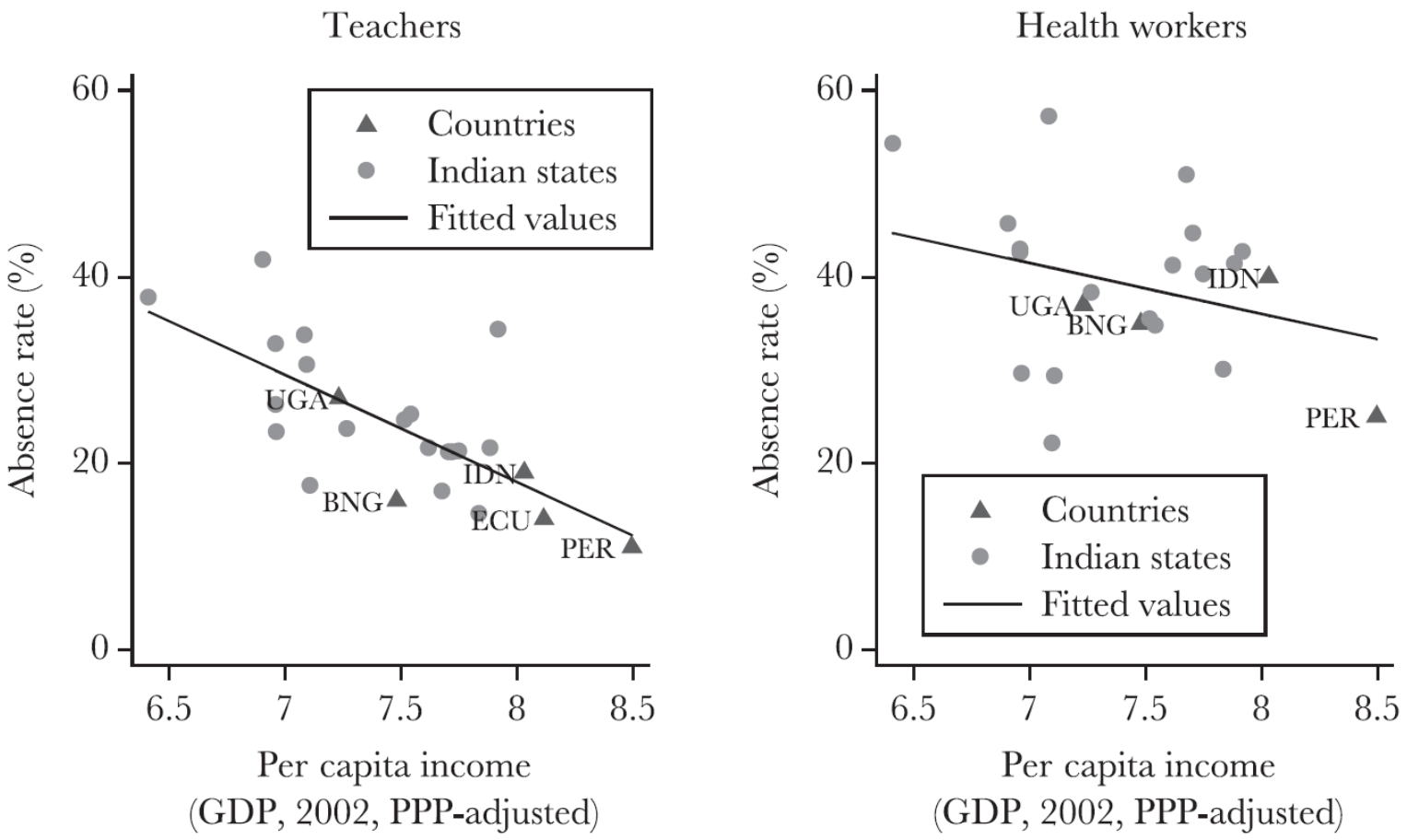
Provider Absence Rates by Country and Sector

	Absence rates (%) in	
	Primary schools	*Primary health centers*
Bangladesh	16	35
Ecuador	14	—
India	25	40
Indonesia	19	40
Peru	11	25
Uganda	27	37
Unweighted average	**19**	**35**

Chaudhury et al. (JEP 2006)

Figure 1

Absence Rate versus National/State Per Capita Income



Muralidharan et al. (J Pub E 2017)

- Focused on India: resurveyed the same villages that we covered in 2003 to study changes over time during a period of considerable increase in education spending
  - Panel data allows us to correlate changes in various inputs and teacher absence

- Found large increases in almost measure of school inputs between 2003 to 2010
  - Schools with water, toilets, library, electricity all went up significantly
  - So did teacher education, training, etc.

- But much less impact on teacher absence
  - Fell from 26.2% to 23.6% (rural)

- Absence reduction is consistent with the income-absence relationship documented in the 2003 data
  - But no increase in TFP in the "absence" production function

- Estimate the fiscal cost of teacher absence to be over Rs. 10,000 crores/year ($5 billion/year in PPP terms)

Muralidharan et al. (J Pub E 2017)

- Only robust predictor of lower absence was increased frequency of monitoring
  - Schools that had been visited/inspected by a senior official in the last 3 months had a significantly lower rate of absence
  - Holds with and without controls and state and district fixed effects

- However, there are large vacancies and short tenures among managerial staff
  - ~20% of district and ~32% of block education officer positions were vacant on average

- Two ways to reduce *effective* student-teacher ratios – hire more teachers or reduce absence rates of existing teachers

- We estimate that it would 10-12 times more cost effective to fill supervisory vacancies than to hire additional teachers

- Also find no impact of VEC/SMCs on teacher absence
  - Consistent with Banerjee et al. (2010) – RCT of strengthening VEC functioning
  - Likely reasons include power asymmetry (cf Kenya study later); collective-action problems
  - Also consistent with Olken (2007) on a different kind of corruption

Improving Teacher Incentives?

- Field interactions with teachers showed that they were often demotivated, in part because there was nothing in their professional lives that depended on performance

- Correlations showed that there was no link between *levels* of teacher pay and their value addition (also in Pakistan – Bau & Das AEJ: Policy 2020)

- Promising evidence on paying teachers based on performance from Israel:
  - Lavy (JPE 2002) and Lavy (AER 2009) find significant positive impacts on learning outcomes from natural and randomized experiments with teacher performance pay

- Several experimental studies on teacher incentives in low-income countries were conducted following the evidence on the high rates of teacher absence:
  - Muralidharan & Sundararaman (JPE 2011)
  - Duflo, Hanna, and Ryan (AER 2012)
  - Glewwe, Ilias, and Kremer (AEJ: Applied 2010)

Muralidharan and Sundararaman (2011) Research Questions

- Does teacher performance-pay improve test scores?
- What, if any, are the negative consequences?
- How do group and individual incentives compare?
- How does teacher behavior change?
- How cost effective is the incentive program?
- How will teachers respond to the idea?

Key Conceptual Issues

- Not obvious that teacher incentives will work (magnitude, crowding out of intrinsic motivation)

- Even those who think incentives can improve test scores worry about distortions to behavior
  - Teaching basic as opposed to higher-order skills (Holmstrom, Milgrom 1991)
  - Test preparation instead of longer-term learning (Glewwe et al 2010)
  - Manipulating test-taking population (Jacob 2005)
  - Short-term boosting of caloric content (Figlio & Winicki, 2005)
  - 'Cheating to the test' (Jacob & Levitt, 2003)

- All examples of multi-tasking (Holmstrom, Milgrom 1991; Baker 1992 and 2002)

- Optimal policy can be different at different parts of the distribution – Lazear (2006)

Conceptual Sketch

- Basic problem is that the social planner cares about human capital (H), but can only write a contract on test scores (T)

- Teachers can take different types of actions (good, neutral, and bad), with different marginal product in the H and T production functions

$$\boldsymbol{a} = \begin{bmatrix} a_g \\ a_n \\ a_b \end{bmatrix}: \qquad H'(\boldsymbol{a}) = \begin{bmatrix} 1 \\ 0 \\ -1 \end{bmatrix} \qquad T'(\boldsymbol{a}) = \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}$$

- Assume teachers have a minimum level of effort they put in (a*) below which they get intrinsic disutility

- In such a setting it may be optimal to not offer *any* incentive on T (if default effort is allocated to the good action)

- But it may still be optimal to have some incentives on T as long as the “bad” actions can be ruled out (and many concerns can be mitigated by design)

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	• Test design is such that you cannot do well without deeper knowledge / understanding • Less of a concern given extremely low levels of learning • Research shows that the process of taking a test can enhance learning
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; • Dropouts assigned low scores
Cheating / paper leaks	• Testing done by independent teams from Azim Premji Foundation, with no connection to the school

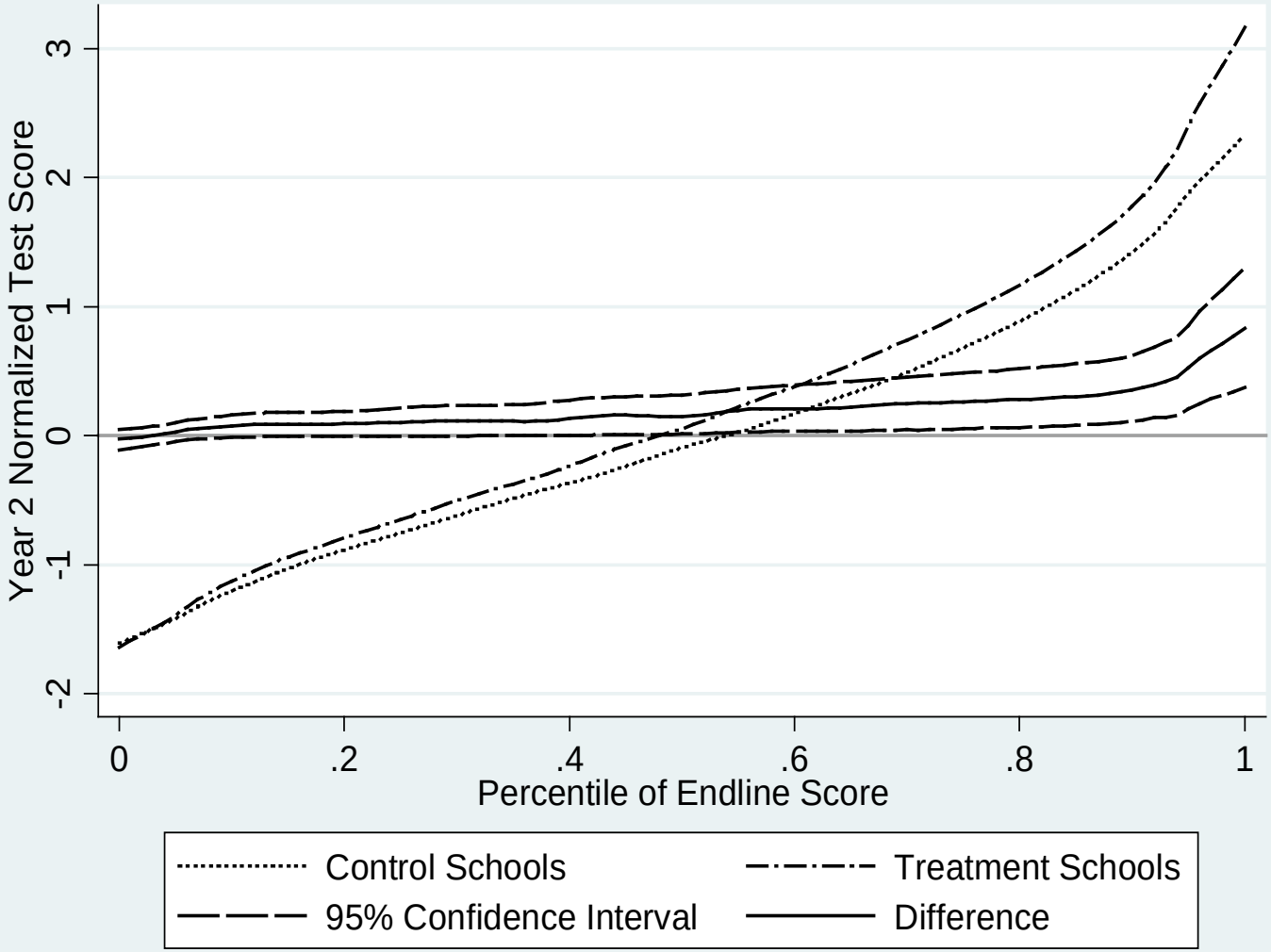
Impact of Incentives on Test Scores

Table 2: Impact of Incentives on Student Test Scores

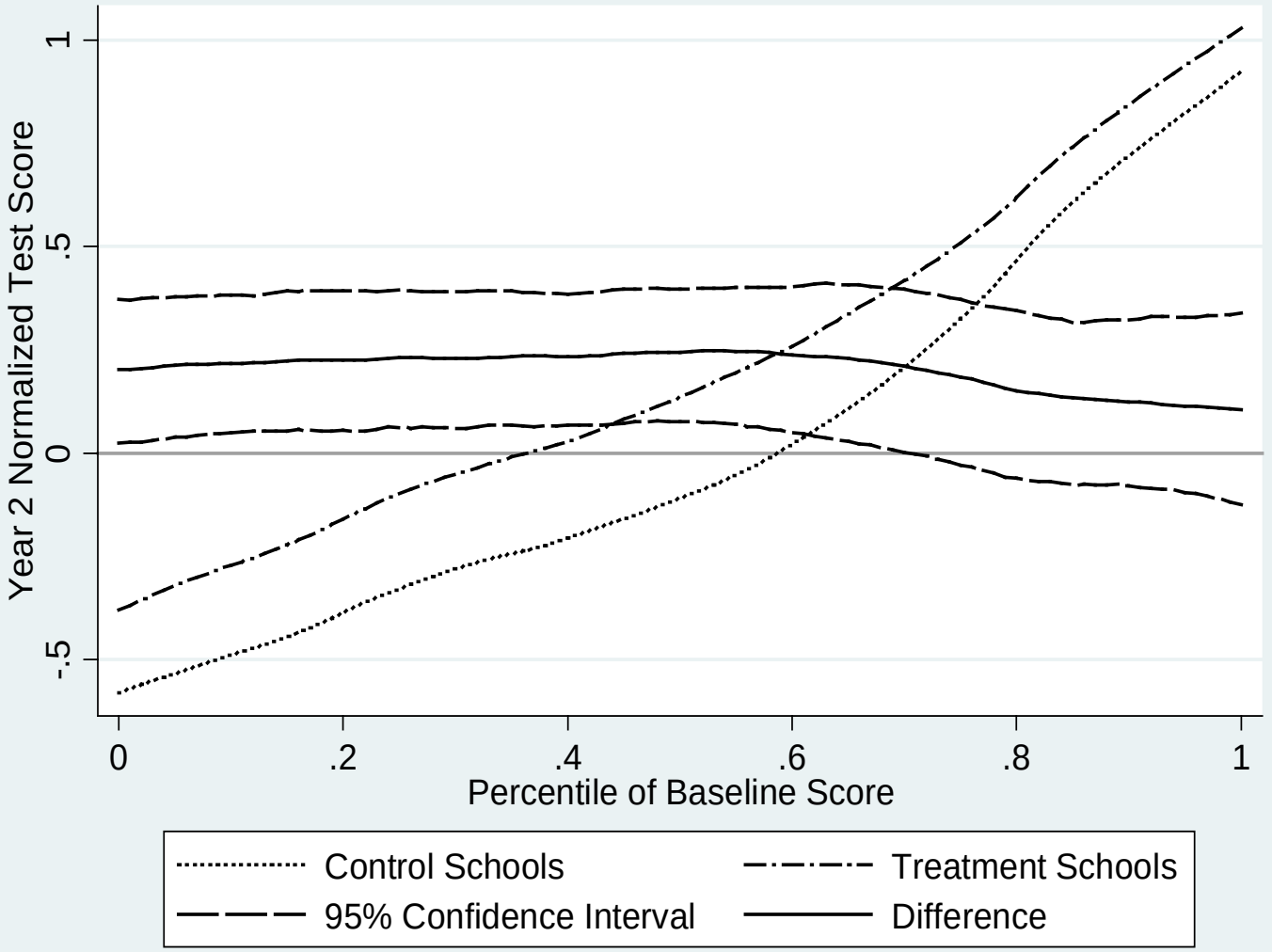
	Dependent Variable = Normalized End of Year Test Score						
	Combined			**Maths**		**Telugu**	
	Year 1 on Year 0	**Year 2 on Year 1**	**Year 2 on Year 0**	**Year 1 on Year 0**	**Year 2 on Year 0**	**Year 1 on Year 0**	**Year 2 on Year 0**
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Normalized Lagged Test Score	0.5	0.553	0.45	0.49	0.418	0.516	0.484
	(0.013)***	(0.016)***	(0.015)***	(0.017)***	(0.022)***	(0.014)***	(0.014)***
Incentive School	**0.153**	**0.143**	**0.217**	**0.188**	**0.277**	**0.119**	**0.158**
	(0.042)***	(0.035)***	(0.047)***	(0.049)***	(0.055)***	(0.038)***	(0.043)***
Observations	68702	78613	49516	34121	24592	34581	24924
R-squared	0.29	0.29	0.23	0.28	0.22	0.32	0.25

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%

Quantile Treatment Effects



Heterogeneous Effects by Student Baseline Score



Heterogeneous Treatment Effects (2 of 2)

Panel B: Teacher Characteristics

	[1] Education	[2] Training	[3] Years of experience	[4] Salary (log)	[5] Male	[6] Teacher Absence	[7] Active Teaching	[8] Active or Passive Teaching
	Stacked regression using both years of data							
Incentive	-0.097	-0.148	0.238	1.230	0.205	0.175	0.077	0.077
	(0.152)	(0.167)	(0.061)***	(0.554)**	(0.060)***	(0.044)***	(0.045)*	(0.06)
Covariate	0.012	-0.032	-0.002	0.001	0.061	-0.049	0.032	0.058
	(0.031)	(0.040)	(0.003)	(0.043)	(0.056)	(0.107)	(0.066)	(0.07)
Interaction	**0.080**	**0.110**	**-0.007**	**-0.119**	**-0.072**	**-0.057**	**0.202**	**0.118**
	(0.047)*	**(0.058)***	**(0.004)***	**(0.061)***	**(0.068)**	**(0.146)**	**(0.083)****	**(0.09)**
Observations	88026	88270	88631	89198	90932	107472	107051	124569
R-squared	0.281	0.28	0.28	0.28	0.28	0.28	0.284	0.27

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%

Impact of Incentives by Mechanical/Conceptual

Table 4: Impact of Incentives on Mechanical Versus Conceptual Learning

	Dependent Variable = Endline Test Score by Mechanical/Conceptual (Normalized by Mechanical/Conceptual Distribution in Control Schools)			
	Year 1 on Year 0		**Year 2 on Year 0**	
	[1]	[2]	[3]	[4]
	Mechanical	**Conceptual**	**Mechanical**	**Conceptual**
Normalized Baseline Score	0.485	0.339	0.449	0.308
	(0.012)***	(0.011)***	(0.013)***	(0.013)***
Incentive School	**0.138**	**0.138**	**0.173**	**0.183**
	(0.038)* **	**(0.043)*** **	**(0.041)*** **	**(0.046)*** **
Observations	67720	67720	42554	42554
R-squared	0.28	0.17	0.24	0.15

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%

Performance on Non-Incentive Subjects

Table 6 : Impact of Incentives on Non-Incentive Subjects

	Panel A: Reduced Form Impact			
	Dependent Variable : Normalized Endline Score			
	Year 1		Year 2	
	Science	**Social Studies**	**Science**	**Social Studies**
Normalized Baseline Math Score	0.215***	0.224***	0.156***	0.167***
	(0.019)	(0.018)	(0.023)	(0.024)
Normalized Baseline Language Score	0.209***	0.289***	0.212***	0.189***
	(0.019)	(0.019)	(0.023)	(0.024)
Incentive School	**0.112****	**0.141*****	**0.113****	**0.18*****
	(0.052)	**(0.048)**	**(0.044)**	**(0.050)**
Observations	11786	11786	9143	9143
R-squared	0.26	0.31	0.19	0.18

Notes:
Social Studies and Science tests were only administered to grades 3 to 5
All regressions include mandal (sub-district) fixed effects and standard errors clustered at the school level.

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%

Group versus Individual Incentives

Table 7: Group versus Individual Incentives

Dependent Variable = Normalized End of Year Test Score

	Year 1 on Year 0			Year 2 on Year 0		
	Combined	Maths	Telugu	Combined	Maths	Telugu
	[1]	[2]	[3]	[4]	[5]	[6]
Individual Incentive School (II)	**0.156*** **	0.184***	0.130***	**0.283*** **	0.329***	0.239***
	(0.050)	(0.059)	(0.045)	**(0.058)**	(0.067)	(0.054)
Group Incentive School (GI)	**0.141*** **	0.175***	0.107**	**0.154*** **	0.216***	0.092*
	(0.050)	(0.057)	(0.047)	**(0.057)**	(0.068)	(0.052)
F-Stat p-value (Testiing GI = II)	**0.765**	**0.889**	**0.610**	**0.057**	**0.160**	**0.016**
Observations	42145	20946	21199	29760	14797	14963
R-squared	0.31	0.299	0.332	0.25	0.25	0.26

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%

How did Teacher Behavior Change?

Table 8: Teacher Behavior (Observation and Interviews)

Teacher Behavior	Incentive versus Control Schools (All figures in %)			
	Incentive Schools	Control Schools	p-Value of Difference	Correlation with student test score
	[1]	[2]	[3]	[4]
Teacher Absence (%)	0.25	0.23	**0.199**	-0.103
Actively Teaching at Point of Observation (%)	0.42	0.43	**0.391**	0.135***
Did you do any special preparation for the end of year tests? (% Yes)	0.64	0.32	**0.000*** **	0.095**
What kind of preparation did you do? (UNPROMPTED) (% Mentioning)				
Extra Homework	0.42	0.20	**0.000*** **	0.061
Extra Classwork	0.47	0.23	**0.000*** **	0.084**
Extra Classes/Teaching Beyond School Hours	0.16	0.05	**0.000*** **	0.198***
Gave Practice Tests	0.30	0.14	**0.000*** **	0.105**
Paid Special Attention to Weaker Children	0.20	0.07	**0.000*** **	0.010

Comparison of Inputs and Incentives

Table 9: Impact of Inputs versus Incentives on Learning Outcomes

	Dependent Variable = Normalized End of Year Test Score					
	Year 1 on Year 0			**Year 2 on Year 0**		
	Combined	**Math**	**Language**	**Combined**	**Math**	**Language**
	[1]	[2]	[3]	[4]	[5]	[6]
Normalised Lagged Score	0.512***	0.494***	0.536***	0.458***	0.416***	0.499***
	(0.010)	(0.012)	(0.011)	(0.012)	(0.016)	(0.012)
Incentives	**0.15*** **	0.179***	0.121***	**0.218*** **	0.272***	0.164***
	(0.041)	(0.048)	(0.039)	**(0.049)**	(0.057)	(0.046)
Inputs	**0.102*** **	0.117***	0.086**	**0.085***	0.089*	0.08*
	(0.038)	(0.042)	(0.037)	**(0.046)**	(0.052)	(0.044)
F-Stat p-value (Inputs = Incentives)	**0.178**	0.135	0.298	**0.003**	0.000	0.044
Observations	69157	34376	34781	49503	24628	24875
R-squared	0.30	0.29	0.32	0.225	0.226	0.239

Teachers Liked the Program

- Teachers interviewed before they know outcomes
- 75% of teachers say the program increased their motivation
  - 25% say their motivation was unchanged
- 85% of teachers had a favorable opinion about the idea of bonus payments on the basis of improvement in student performance
- 68% thought that the government should try and scale up this program in all schools
- 75% were willing to accept a performance-pay system even under neutrality of the total wage bill
- Teachers who show greater support for performance-pay (ex ante) are also likely to have performed better (ex post)
  - Implications for sorting into teaching profession

Duflo, Hanna, Ryan (2012)

- RCT conducted in schools run by a non-profit Seva Mandir
- Teachers equipped with cameras with time and date stamps
- Changed the wage schedule to reward attendance in treated schools
  - Control teachers had a flat wage of Rs 1000
  - Treated teachers had a base pay of Rs 500 if they attended 10 days or less and got an extra Rs. 50 for every day attended above 10 days
- Find large increases in teacher attendance, reduction in school closure, and also in learning outcomes (but no change in activity conditional on attendance)
- Structural model to disentangle effects of monitoring & incentives (impact is mainly driven by the incentives)
- Combined with MS 2011, reinforce the importance of incentives

Complementarities between incentives with Inputs?

- Quality = F (Knowledge, Effort)
- Suggestive evidence of complementarities from Het TE tables of MS 2011
- Mbiti et al (QJE 2019)
  - RCT of offering school grants, teacher incentives, and both (and a control group)
- No impact of inputs on their own
- Modest impacts of incentives on their own (additional point of high and low-stakes testing)
- Significant effects of both (larger than sum of each)

Mbiti et al (2019)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Year 1				Year 2			
	Math	Kiswahili	English	Combined	Math	Kiswahili	English	Combined (PCA)
Panel A: Z-scores, low-stakes								
Grants (α_1)	-0.05	-0.01	-0.02	-0.03	0.01	-0.00	0.02	0.01
	(0.04)	(0.04)	(0.04)	(0.03)	(0.05)	(0.05)	(0.05)	(0.05)
Incentives (α_2)	0.06	0.05	0.06	0.06*	0.07*	0.01	0.00	0.03
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.04)
Combination (α_3)	0.10**	0.10***	0.10**	0.12***	0.20***	0.21***	0.18***	0.23***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)
N. of obs.	9,142	9,142	9,142	9,142	9,439	9,439	9,439	9,439
$\alpha_4 := \alpha_3 - \alpha_2 - \alpha_1$	0.10	0.06	0.07	0.09	0.12	0.20	0.16	0.18
p-value ($\alpha_4 = 0$)	0.09	0.27	0.28	0.11	0.08	0.00	0.05	0.01
$\alpha_5 := \alpha_3 - \alpha_2$	0.05	0.05	0.05	0.06	0.13	0.20	0.18	0.19
p-value ($\alpha_5 = 0$)	0.31	0.22	0.38	0.21	0.01	0.00	0.00	0.00
Panel B: Z-scores, high-stakes								
Incentives (β_2)	.	.	.	.	0.17***	0.12**	0.12**	0.21***
					(0.05)	(0.05)	(0.05)	(0.07)
Combination (β_3)	.	.	.	.	0.25***	0.23***	0.22***	0.36***
					(0.05)	(0.06)	(0.06)	(0.08)
N. of obs.	.	.	.	.	46,883	46,879	46,879	46,879
$\beta_5 := \beta_3 - \beta_2$	.	.	.	.	0.08	0.11	0.10	0.15
p-value ($\beta_5 = 0$)	.	.	.	.	0.05	0.01	0.06	0.01

Extensive margin benefits?

- Improving the link between performance and pay can also have significant benefits on the extensive margin (Lazear 2000)

- 2 recent RCTs look at both the selection effects and the incentive effects of P4P

- Leaver et al (AER 2021)
  - Randomized contracts (fixed wage vs P4P) at the time of teacher selection in Rwanda
  - Re-randomized after hiring (in an incentive compatible way) to separate out the effects of selection and incentives (like Karlan & Zinman 2009 for credit)
  - Find positive (but insignificant) selection effects (~20% of total effect), and also find positive and significant incentive effects (~80% of total effect)

- Brown and Andrabi (2021)
  - Similar goals (with a slightly different design) implemented as an RCT among private schools in Pakistan
  - Finds meaningful selection effects, of equal magnitude as incentive effects; implying that ignoring selection effects would considerably understate total effects of P4P

How about unconditional pay increases?

- Widely believed in the education policy community that low teacher pay is a leading reason for poor teacher performance in developing countries (EFA Global Monitoring Report 2014)

- Extensive margin argument (selection)

- Intensive margin argument (multiple narratives)
  - Gift-Exchange/Fair-Wage Effort Hypothesis (Akerlof QJE 1982; Bewley 1999; Fehr et al. QJE 1993, ECMA 1997; Gneezy & List ECMA 2006; Falk ECMA 2007) [can also work through status/respect from higher income]
  - Efficiency wages – formal & informal (Shapiro-Stiglitz; World Bank 2003)
  - Underpaid teachers need to take on outside jobs; pay raise will reduce these and increase time and effort on teaching (implicit in UNICEF 2014)

- Very little rigorous evidence of either of these posited channels by which raising teacher salaries may improve student learning

de Ree et al (2018)

- Presents evidence on the "intensive margin" impacts of a permanent *doubling* of teacher pay on student learning outcomes

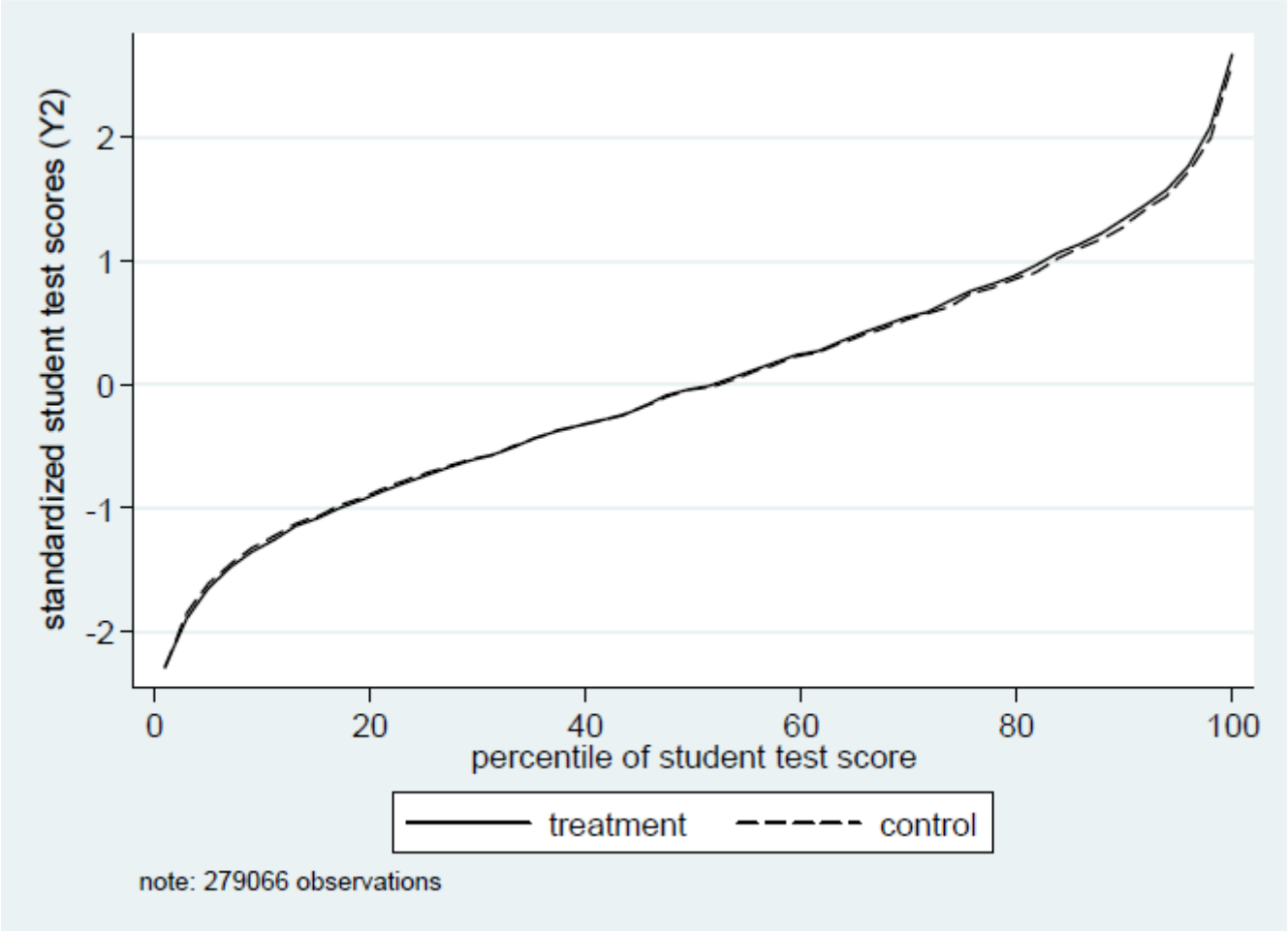
- Uses data from a large-scale experimental evaluation of an "as is" policy change in Indonesia in a near-representative school sample
  - The policy change cost $5 Billion/year in steady state!

- Also, provide experimental evidence on the impact of raising public-sector civil-servant pay on outcomes using an RCT
  - Key question in literature on public sector labor markets
  - Intensive margin is key to cost effectiveness
  - Dal Bo et al. (QJE 2013) study extensive margin

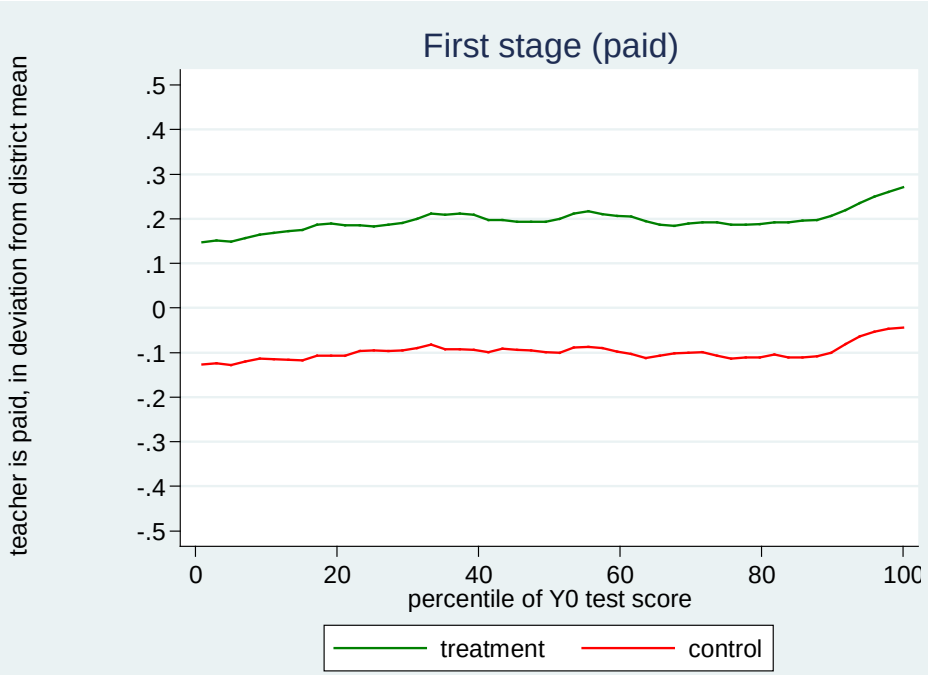
de Ree et al (2018) - Results

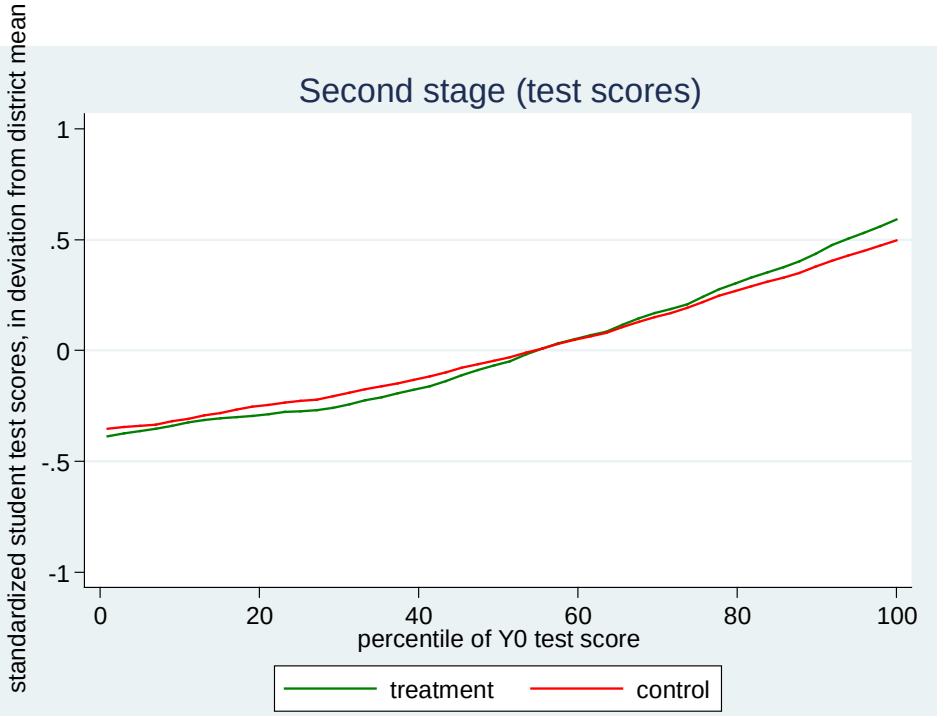
- The experiment "worked" remarkably smoothly and was implemented by the government as intended
- Large first-stage effects on the fraction of teachers who get the pay increase in the treatment schools due to the treatment
- Teachers in treatment schools report an increase in satisfaction with pay, reductions in financial stress, and reductions in the incidence of holding second jobs (and in the hours worked on them)
- No impact on test scores of students in treated schools
  - Precise zeros – can rule out effects larger than 0.05 SD in ITT estimates
  - Can rule out IV estimates over 0.1 SD at the teacher level
- Yet, unconditional pay increases for teachers are where the bulk of education budgets go!

Quantile Treatment Effects



The paper in two pictures (Y2 data)





- Similar increase in exposure to a certified & paid teacher
- No impact on test scores at any point of the baseline test score distribution

Contract Teachers

- Large scale expansion of primary education in developing countries (MDG's, EFA, SSA, etc)
  - Has led to significant increases in access and enrollment
  - But has also led to difficulties in maintaining and improving school quality
  - ~60% of 6-14 age cannot read at 2nd grade level though ~95% enrolled
- Hiring and deploying enough teachers has been a big challenge
  - Fiscal difficulties (teacher salaries are ~90% of education spending)
  - Logistical challenges (qualified teachers are less willing to be deployed to underserved areas)
- A common response in many developing countries has been to staff unfilled teaching positions with locally-hired contract teachers (not civil-service employees)
- Main characteristics of contract teachers include:
  - Fixed-term renewable contracts – limited job security
  - Typically less qualified and much less likely to be formally trained
  - More likely to be from the local area (and hired by school committees)
  - Typically paid much lower salaries

Regular vs. Contract Teachers (in M & S 2013 sample)

	Regular Teachers	Contract Teachers	P-value (H0: Diff=0)
Male	65.7%	28.1%	0.004***
Age	39.13	24.45	0.000***
College Degree or Higher	84.5%	46.9%	0.000***
Formal Teacher Training Degree or Certificate	98.7%	12.5%	0.000***
Received any Training in last twelve months	91.8%	59.4%	0.000***
From the same village	9.0%	81.3%	0.000***
Distance from home to school (km)	12.17	0.844	0.000***
Teacher Salary (Rs./month)	9,013	1,250	0.000***

Research Questions

- The use of contract teachers is a key education policy innovation in primary education in the past 25 years in India and other developing countries

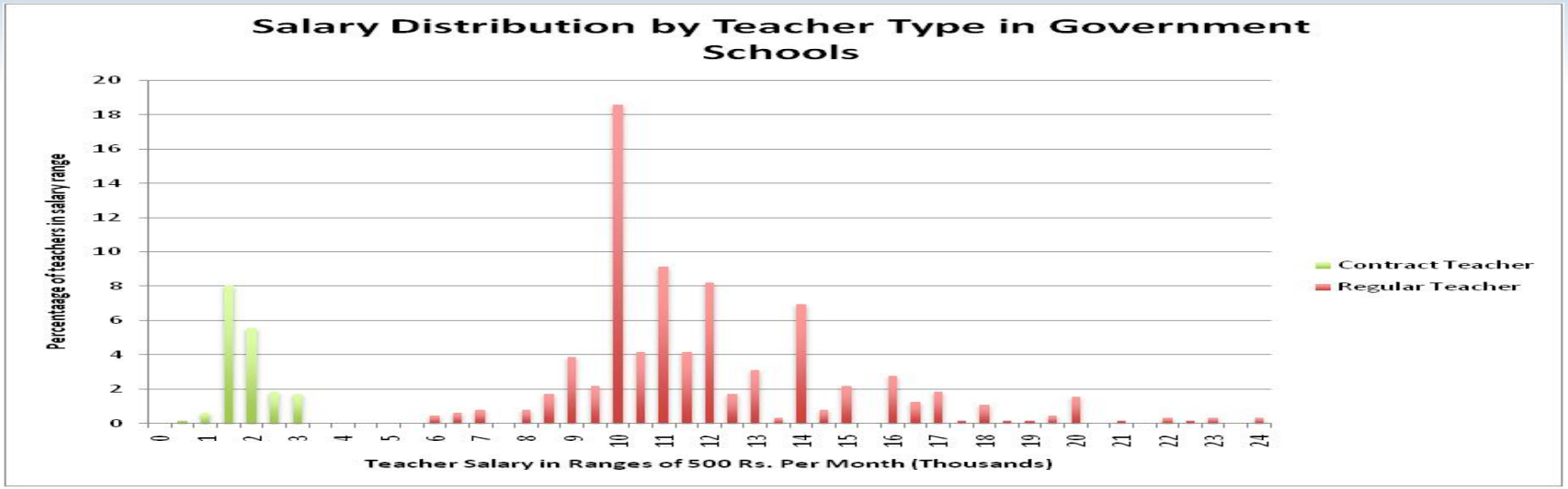
- The use of contract teachers is highly controversial
  - Opponents dislike lack of training (de-professionalizing of education); lower wage (concerns of exploitation & low motivation); argue they won't be effective
  - Proponents point to greater accountability, connection to community, accountability

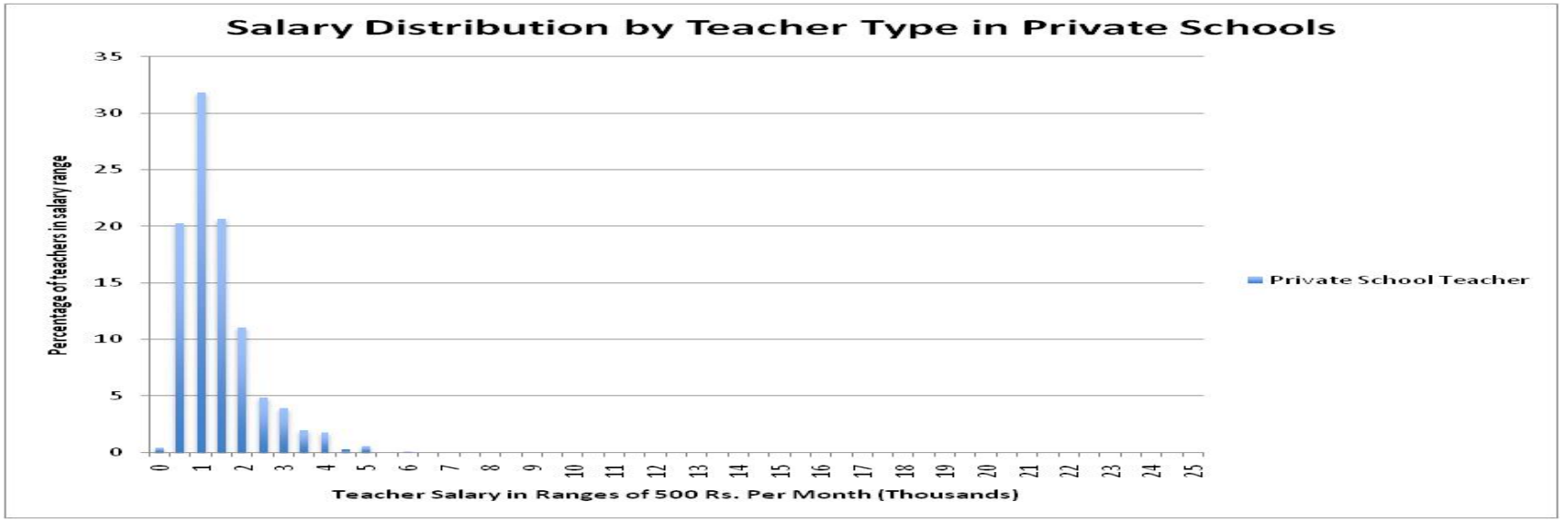
- Multiple experimental studies of contract teachers
  - Muralidharan & Sundararaman (2013)
  - Duflo, Dupas, and Kremer (2015)
  - Bold, et al (2017)

- Main finding is that contract teachers are (a) highly effective at improving learning, (b) have lower absence rates, and (c) typically at least as effective as regular civil-service teachers (despite much lower pay and training),
  - Caveat: Results may hold for early-grade skills but not for higher grades (where content knowledge may become a key constraint)

Salary Distribution by School and Teacher Type

Percentage





Policy Implications

- Three main concerns about expanding use of contract teachers
  - De-professionalizing education by promoting use of untrained teachers
  - Sustainability of such a two-tier system would be problematic (also legal concerns)
  - Political economy concerns – once you have enough contract teachers, they will all lobby to become civil-service teachers and the incentive and cost benefits are both lost

- One possible solution is to create practicum/apprenticeship-based training programs where modular classroom training (2-3 months) and practical training (8-9 months) are interspersed
  - Provide preference for years of practical experience at the time of regular hiring

- Solves several practical challenges while being based on the evidence
  - Apprentices will resemble contract teachers in demographics and pay – and provide both an effective and cost-effective way of augmenting teaching capacity (especially, to provide small group instruction for foundational literacy/numeracy for first-generation learners)
  - Professionalism concern is addressed by integrating practicum into training and providing a formal teacher training credential at the end of 3-4 years
  - Legal concern is addressed by making practicum part of training as opposed to steady state
  - Political challenge is addressed by providing a pathway to getting hired as a regular teacher