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Teacher Characteristics, Actions and Perceptions: What Matters for Student Achievement in Pakistan?

Presented by: Monazza Aslam (Institute of Education, University of London, ITA, Pakistan)

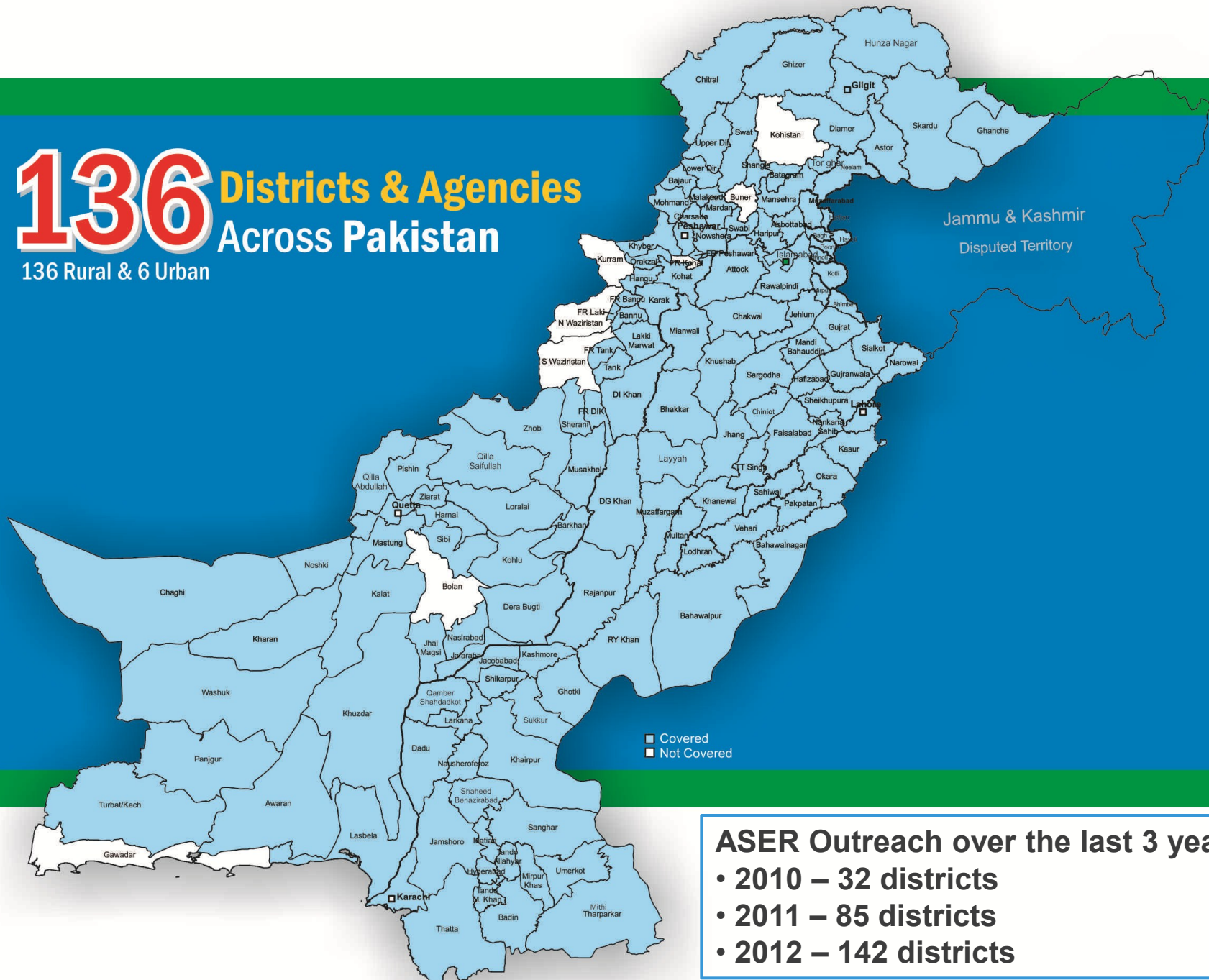
Co-authors: Shenila Rawal (IOE) and Baela Jamil (ITA)

Background

- Drive for UPE, access and quality.
- Annual Status of Education Report data (various years)
 - Citizen led large scale national household survey **(3-16)**
 - Quality of education in rural and some urban areas **(5-16)**
 - Seeks to provide evidence on learning and access gaps
 - Influence National & Provincial policy and actions for RTE.
 - Provides information for tracking trends and MDG/EFA Targets up to 2015
 - Influence Goal Setting for Post-2015 Agenda
- Some key highlights from ASER-Pakistan 2012
- Paints a grim picture!

136 Districts & Agencies Across Pakistan

136 Rural & 6 Urban



ASER Outreach over the last 3 years

- 2010 – 32 districts
- 2011 – 85 districts
- 2012 – 142 districts

ASER Pakistan Assessment Tools Grade II

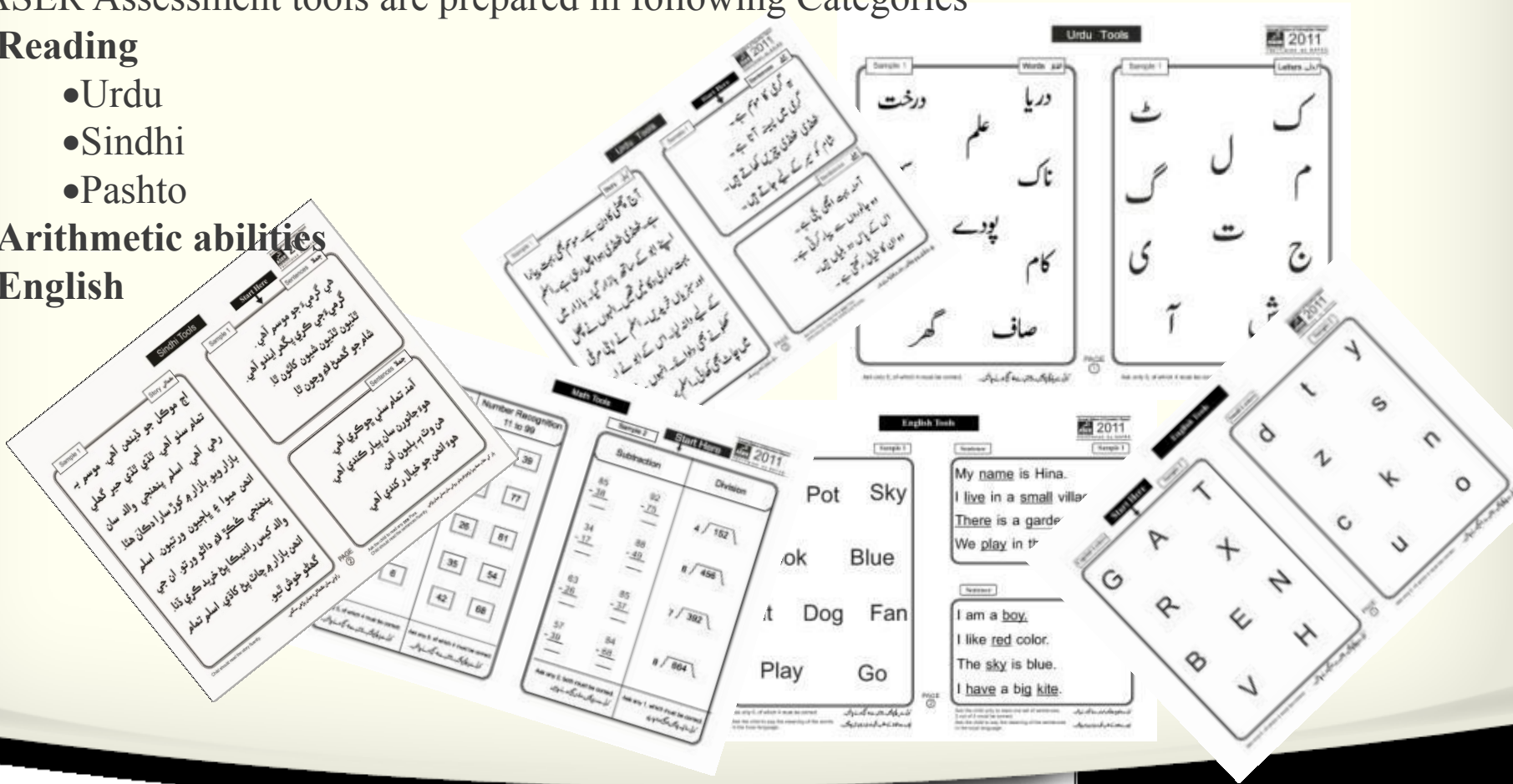
ASER Assessment tools are prepared in following Categories

- Reading

- Urdu
- Sindhi
- Pashto

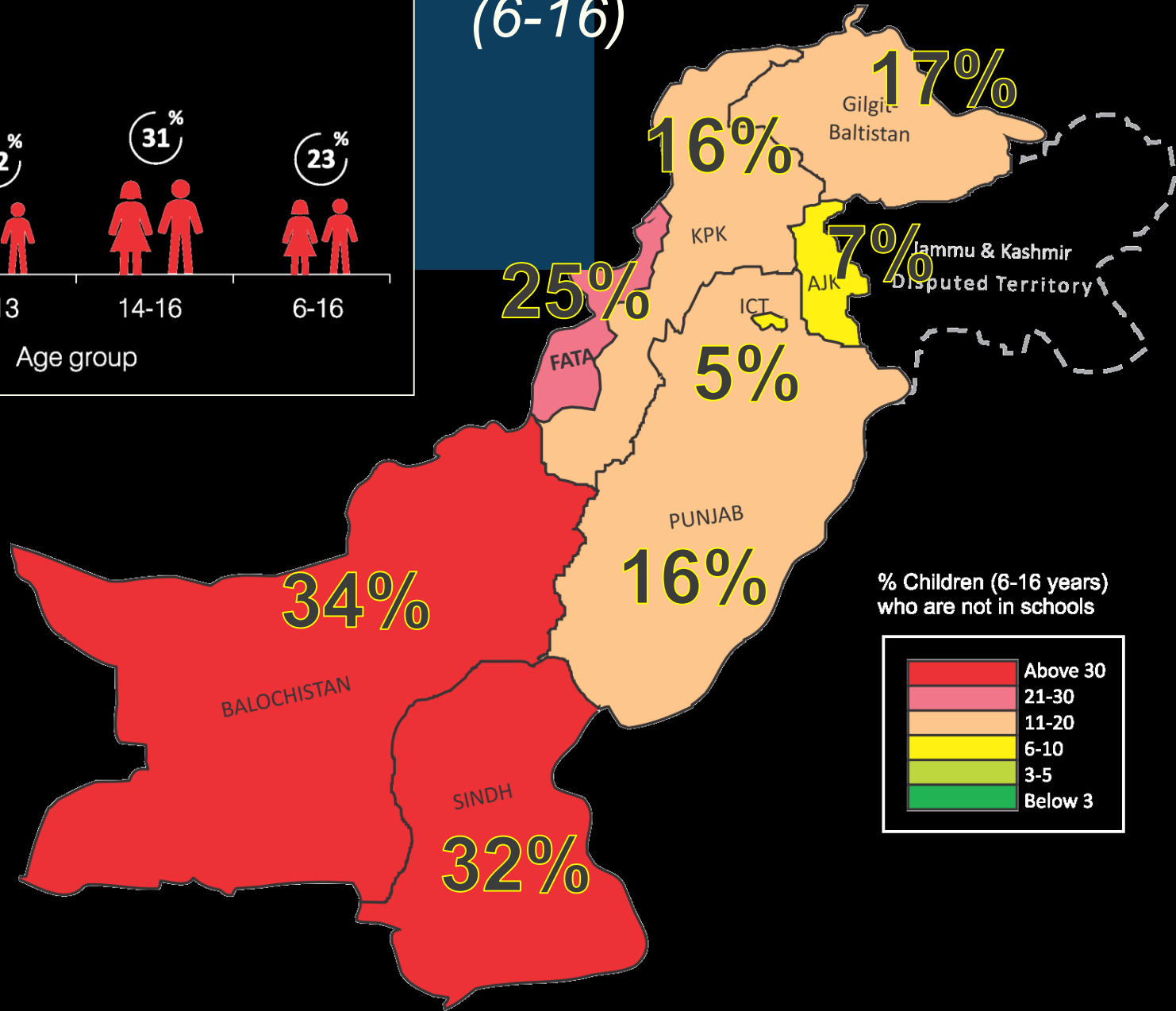
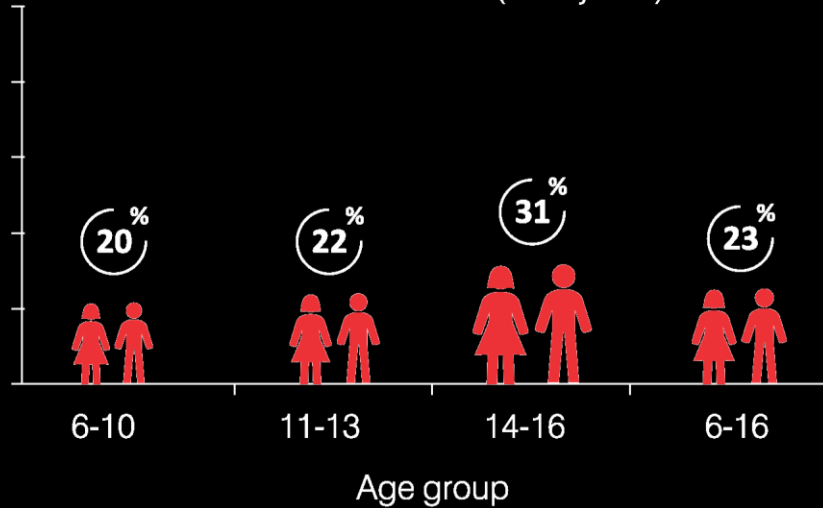
- Arithmetic abilities

- English



Out-of-School children (6-16)

Out of school children (6-16 years)

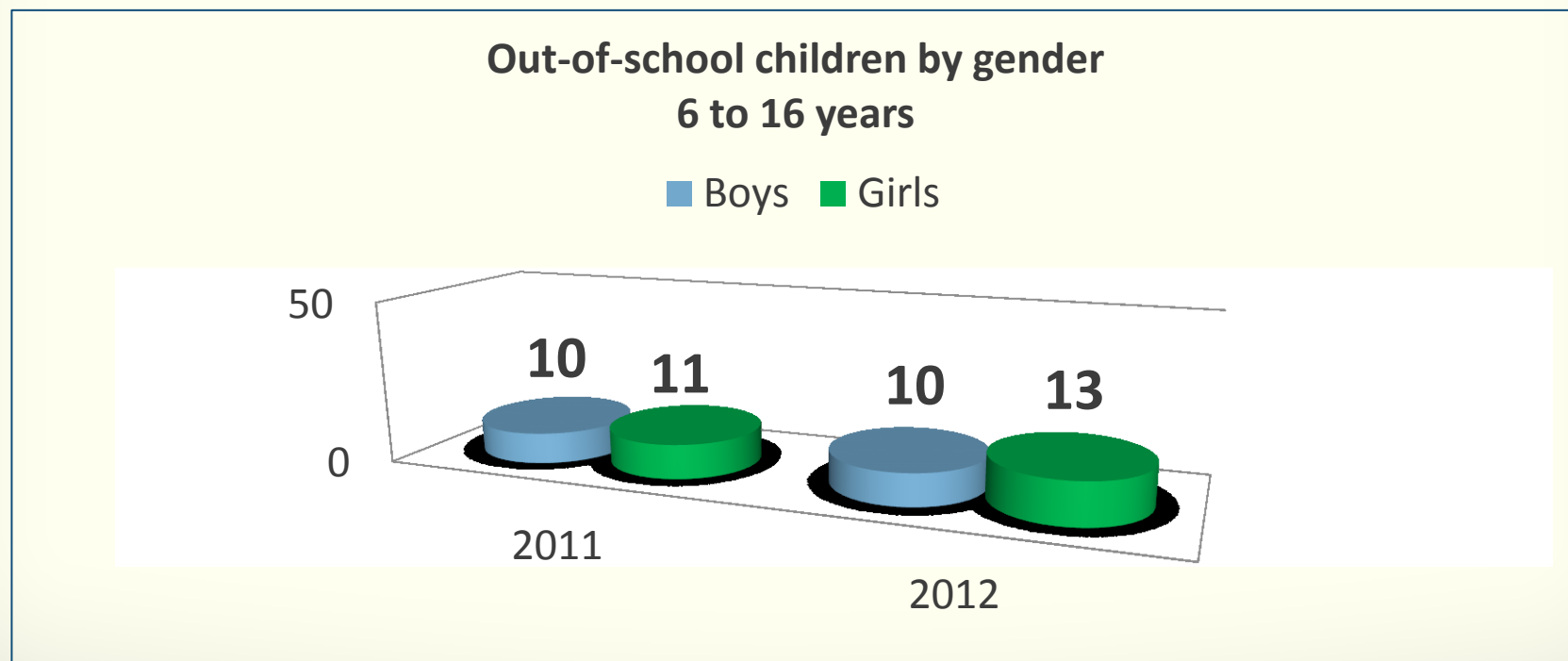


% Children (6-16 years) who are not in schools



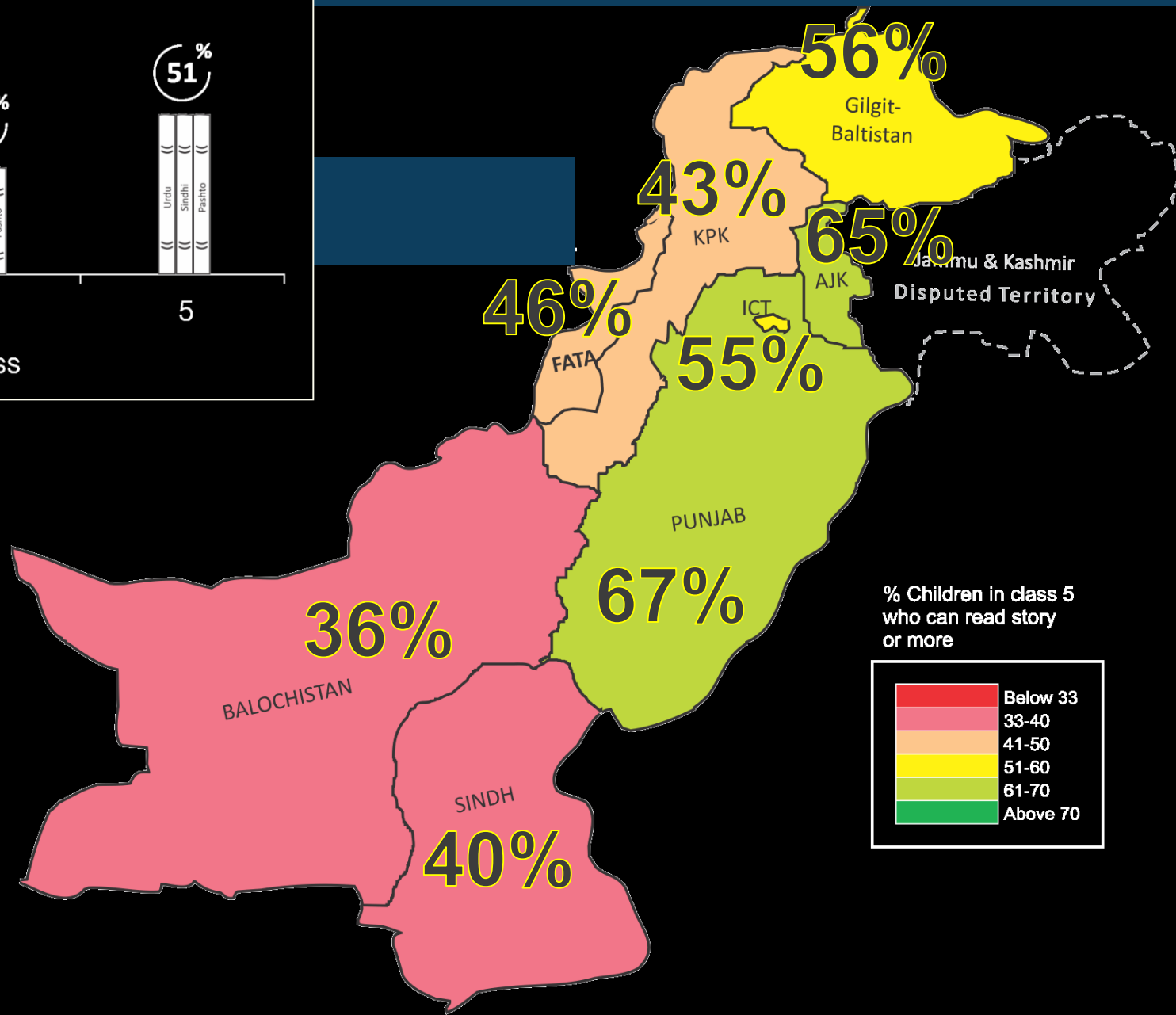
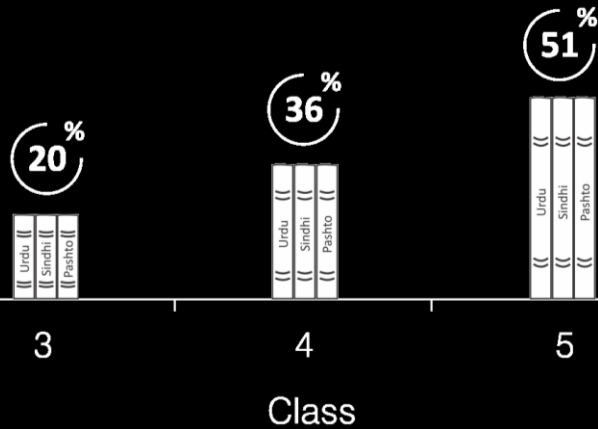
Gendered Comparison: Out-of-School Children (6-16 years)

- There are more Girls out-of-school than boys



Learning Levels (Class 5): Urdu/Sindhi/Pashto

% Children who can read story
(Urdu/Sindhi/Pashto)

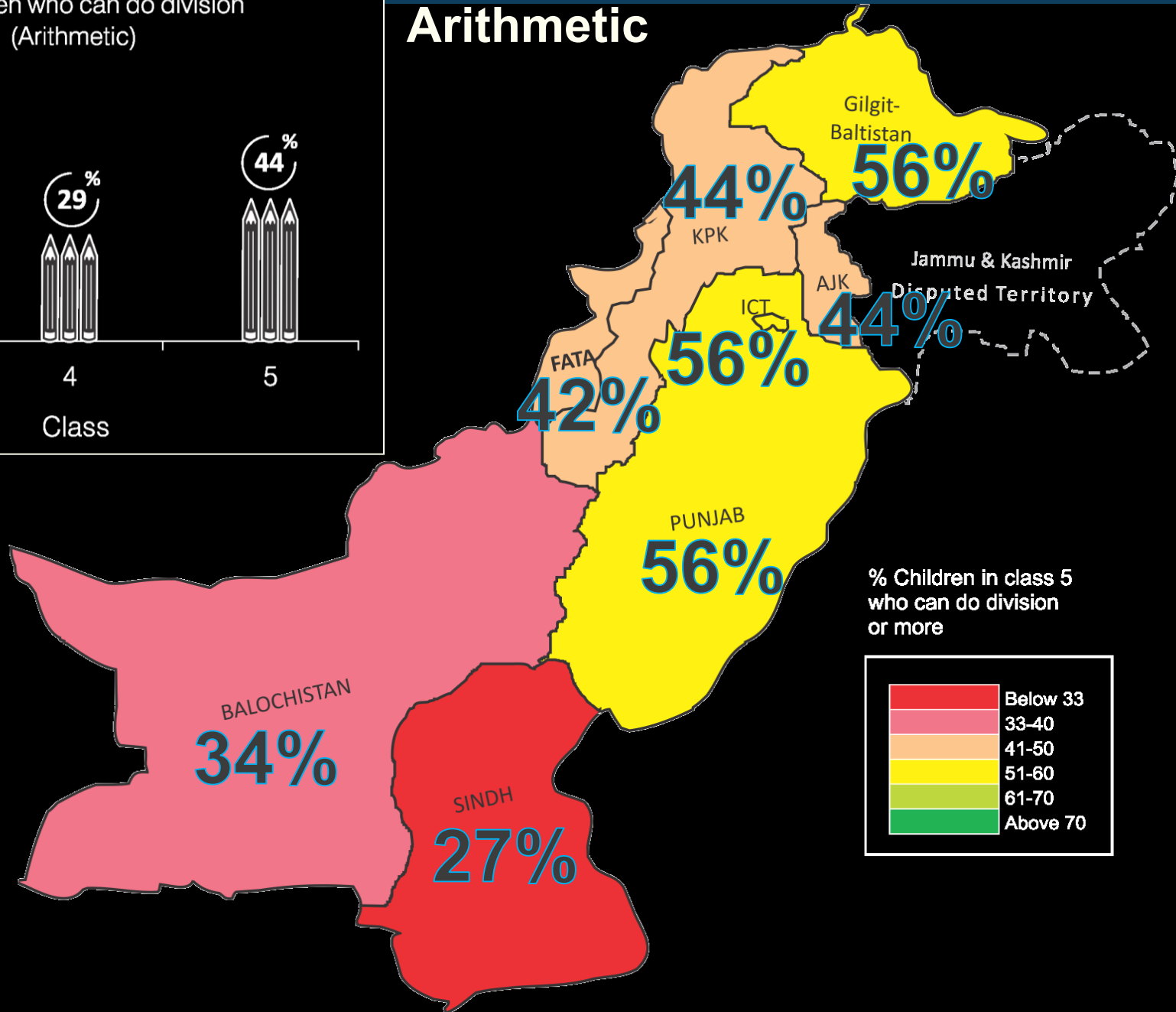
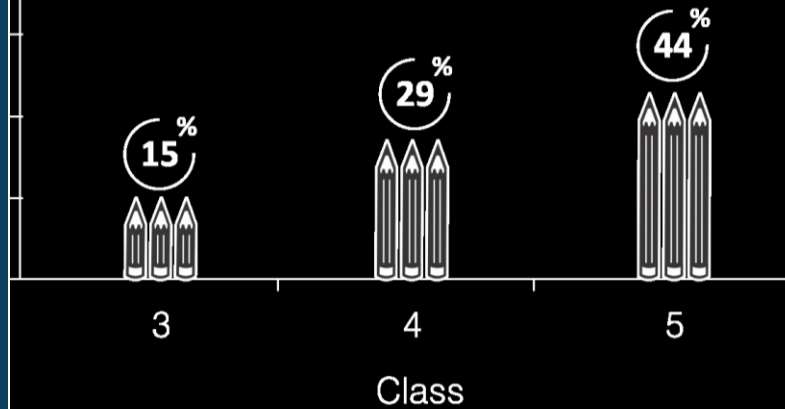


% Children in class 5
who can read story
or more



Learning Levels (Class 5): Arithmetic

% Children who can do division
(Arithmetic)



% Children in class 5
who can do division
or more



Importance of teachers recognised

- Teacher quality recognised as one of the most significant institutional determinants of academic success
- Improvements in teaching may be the most effective ways of raising educational quality
- However, debate regarding which characteristics of teachers are important
- And there is evidence that the traditional observable teacher characteristics explain little across teacher variation in pupil outcomes
- Question: what makes one teacher more effective than another?
- Observable vs. usually unobserved: teacher attitudes and opinions are investigated to give a more holistic approach to researching teacher effectiveness and its impact on student learning.

A look at the evidence...

- *low quality of teaching in Pakistan contributes to poor learning outcomes* (Khamis and Sammons, 2004; Westbrook *et al.*, 2009).
- *Low levels of teacher subject matter knowledge in Pakistan are widely reported* (Aslam and Kingdon, 2011)
- teaching at primary level can be the *last choice of government service* in Pakistan with average and below average candidates tending to seek to join the teaching profession (Saeed and Mahmood, 2002).
- Teacher *recruitment* can often be *based more on issues of political economy than merit* (Westbrook *et al.*, 2009).
- **BUT: Teacher effectiveness (measured using test scores) has been shown to have a significant impact on student outcomes. For example, research by Metzler and Woessman (2010) has shown that a one standard deviation increase in teacher achievement increases student achievement by 10 percent of a standard deviation.**

Data

- SchoolTELLS-Pakistan survey of 120 primary schools in rural Punjab.
- Survey covered three districts: Faisalabad, Mianwali and Rahim Yar Khan.
- 20 villages from each district and two schools from each village (1 Government, 1 Private, where available) totalling sample 120 schools overall.
- Each school visited once, teacher absence recorded.
- Series of questionnaires – school questionnaire, teacher questionnaire, student questionnaires (10 students from grades 3 and 10 from 5 randomly chosen: tested, ravens), class room observation data from both grades obtained.

More on data...

- **Students**: in addition to standard variables (age, gender etc.), various rich indicators such as children's aspirations, ability (Ravens test), private tuition as well as additional details on their health in the last three years, their involvement with household chores as well as in the family business. Insights into the home were also obtained by collecting data on parental education, reading habits and interest in the child's education as well as the size of the home and numbers of books in the household. Children tested: Maths and Language (Urdu), grade 2 curriculum.
- **Teachers**: Captured information on the teacher's age, qualifications, experience, political affiliations etc. as well as information on pedagogical style and time-on-task. Questions on teachers' views on various aspects of the teaching profession + a teacher test aimed at evaluating the teachers' ability to teach at the primary school level; aimed at evaluating the teachers' abilities in three key areas: *subject matter knowledge, ability to explain and ability to spot mistakes*.

Empirical Strategy

1. Standard OLS: $A_{ijkl} = \alpha + \beta X_i + \delta S_j + \lambda T_k + \varepsilon_{ijkl}$

Where A_{ijkl} is the achievement of the i^{th} pupil in the l^{th} subject in the j^{th} school as taught by the k^{th} teacher.

- The richness of our dataset allows us to exploit the variation of teachers within schools and use a school fixed effects estimation to control for this non-random matching of teachers to pupils and schools. This approach allows us to control for observed as well as unobserved school factors that may affect pupil achievement and hence reduce the endogeneity bias. This school fixed effects specification is as:

2. $A_{ijkl} = \alpha + \beta X_i + \lambda T_k + (\mu_j + \varepsilon_{ikl})$

Where μ_j are the observed and unobserved school-level characteristics, which do not vary within schools.

Possible biases

- This estimate also may be biased due to possible non-random matching of teachers to pupils within a school.
- In rural Pakistan schools tend to have one class per grade so this non-random matching if at all present would be across grades within a school as opposed to within grades.
- In addition children in rural areas tend to attend the nearest and only available school.
- However it must be noted that even this within schools estimate can result in biased results due to both pupil and teacher unobservable remaining in the error term. Unfortunately, teachers do not vary as much within one grade across subjects and therefore a pupil fixed effects analysis is not possible.

Descriptive Statistics

Variable	Mean	Std. Dev.
Student test score (149)	67.5	25.9
Student math score	46.4	0.9
Student language score	21.2	13.3
Class 5	0.49	0.50
Private School	0.46	0.50
Monograde	0.68	0.47
Teacher Experience	20.5	10.5
Teacher Experience Squared	528.0	441.3
Teacher Male	0.54	0.50
Teacher Twelfth	0.12	0.33
Teacher Bachelors	0.30	0.46
Teacher PTC Training	0.37	0.48
Teacher No Training Certificate	0.05	0.22
Teacher Training Days	11.75	9.71
Teacher Annual Salary Rs. (\$)	198961.1 (\$1832)	81900.7 (\$754)
Teacher language score (39)	26.9	10.2
Teacher math score (35)	20.5	8.9
Children under 5	0.37	0.48
Children 6 to 14	0.55	0.50

Some unusual teacher variables

Dissatisfied with salary	0.58	0.49
Dissatisfied with facilities	0.51	0.50
Associated PP	0.13	0.34
Teacher Problems	0.89	0.32
Leaders Effective	0.38	0.46
Teachers active in unions	0.56	0.50
In favour of Performance related pay	0.97	0.18
Favour Salary reduction for absence	0.82	0.39
Believe all students capable in maths	0.79	0.41
Use new training techniques	0.97	0.17
Satisfied with own skills and knowledge	0.96	0.19
Have difficulties in Maths teaching	0.55	0.50
Boys more passionate about studies	0.31	0.46
Boys more capable in maths	0.66	0.47
Send reports annually to parents	0.82	0.38
Inquire about student absence	0.96	0.20
Parents are attentive	0.55	0.50
Parents no objection to teachers punishing	0.49	0.50
Gender Match	0.86	0.35

Key findings: Actions, skills, perceptions?

- ***Observable teacher characteristics* are not what make teachers differentially effective but their ability to teach, subject matter knowledge and attitudes to teaching matter more.**
- **In particular:** not only does teachers' salary not appear to significantly affect their students' performance but even the teachers' levels of satisfaction with their salary rates do not significantly impact student outcomes.
- **Teacher's skills matter!**
- The tests conducted on teachers in math and language aimed at understanding levels of teacher skills and subject – matter knowledge in the schools within the sample. Teachers maths scores are positively related to student outcomes – higher teacher maths scores improve student outcomes by 0.380 standard deviations.

Attitudes and perceptions

- **Perceptions and attitudes matter!** Teachers who are dissatisfied with the school's facilities are associated with student performance -0.44 standard deviations less than those who are satisfied with facilities in the workplace.
- Those teachers who are associated with political parties and those that are active in teacher unions have a significant negative impact on student learning with test scores that are lower than for those taught by less politically active teachers.
- **Teachers who are confident in their maths teaching capabilities have students who perform significantly better than those who acknowledge that they have difficulties in teaching this subject.**
- **Of fundamental importance is the fact that these attitudes appear to affect female student outcomes disproportionately more than male student outcomes.**

Gender biases?

- Gender matching of teachers and students in Pakistan according to our findings is **not of significance**. The non-significance of the gender match variable is also corroborated by the finding that teachers' opinions on boys' (versus girls') academic capabilities and abilities are all shown as not being significantly related to student test scores.
- A large proportion of both male and female teachers are of the opinion that boys are more capable in maths than girls and more significantly a higher percentage of male teachers than female teachers are of the opinion that boys are more enthusiastic about their studies.
- However, neither of these aforementioned biases appears to significantly impact on student test scores suggesting that although **teachers in Pakistan may hold some gender biases about their pupils' capabilities these do not appear to impact on the results of the children they teach.**

Conclusion

- Teacher's own skills, their attitudes and perceptions are key determinants of student outcomes.
- Observable characteristics not as important.
- Of fundamental importance is the fact that these attitudes appear to affect female student outcomes disproportionately more than male student outcomes.
- With a background of concern about the quantity and quality of education that girl children receive, this is of great consequence from a policy perspective.
- If teachers' beliefs and attitudes impact on student outcomes, and in particular certain students, their role as such needs to be further understood by policy makers, training providers and schools alike.
- Policy Implications...
- Further research...