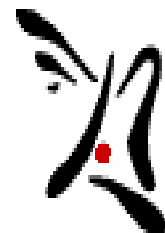
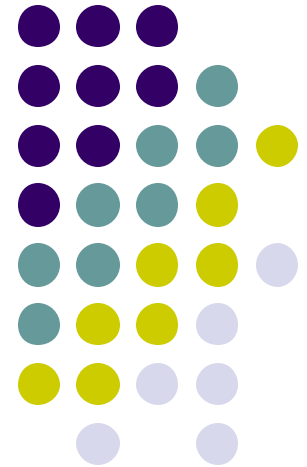


Telecom Regulatory Environment, 2006

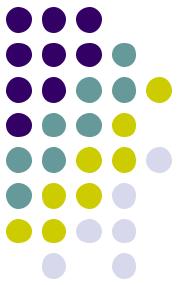
Rohan Samarajiva,
Divakar Goswami, Malathy Knight John,
Payal Malik, Deunden Nikomborirak,
Lorraine Carlos Salazar, Joseph Wilson



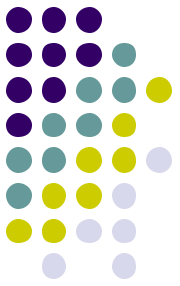
LIRNE *asia*

Learning Initiatives on Reforms for Network Economies

Agenda

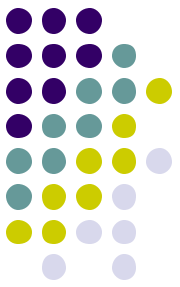


- TRE explained
- Detailed analysis of six components across six countries
- Overall results, including comparison with Pakistan and Philippines (top three)
- Discussion



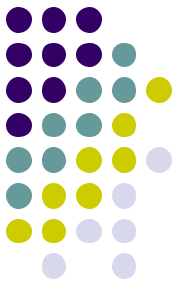
TRE explained

- Regulation is one important variable affecting sector performance
- Regulation is not the end, it is one of the means
- What really matters is performance
 - Connectivity
 - Price
 - Quality
 - Choice

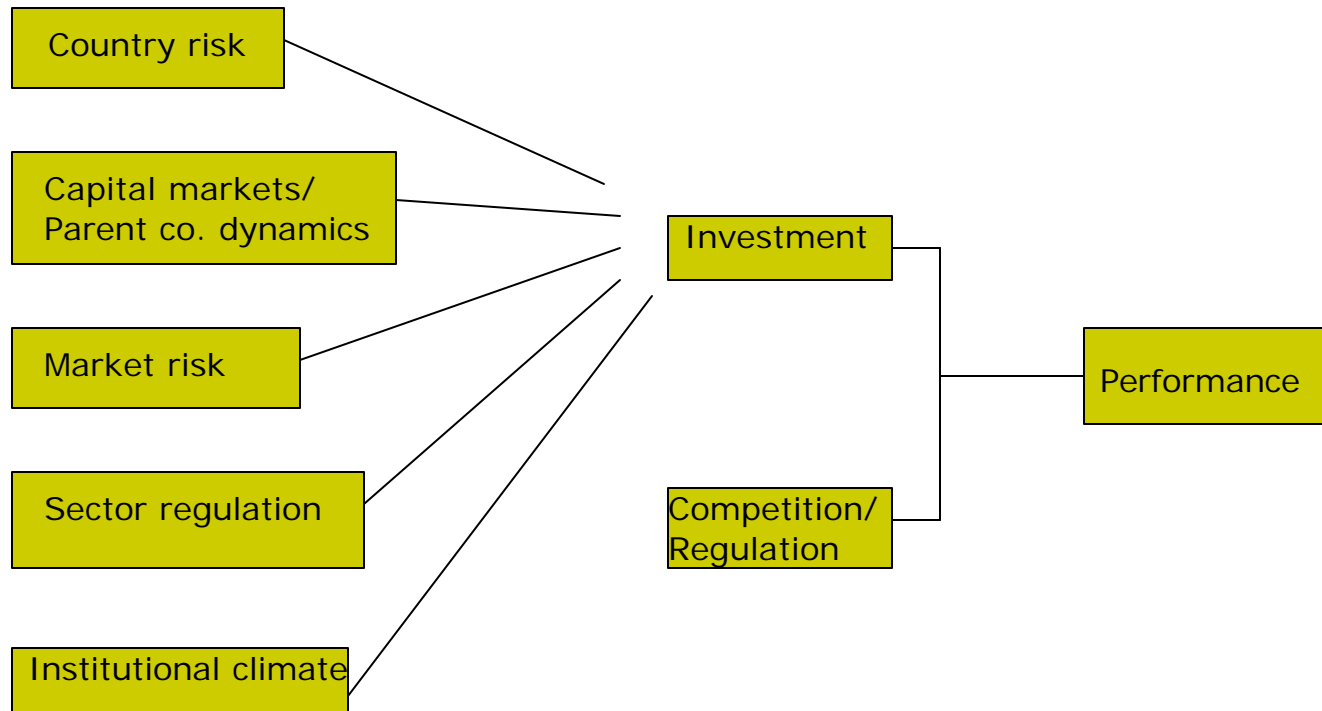


Cause-effect problems

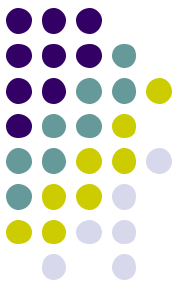
- Sector regulation alone not enough
- Good performance cannot be explained solely as an outcome of regulation
 - Thailand in present study
- Regulation affects investment, it also affects competition . . .
- Not possible to impute regulatory performance from sector performance only



Causal chain



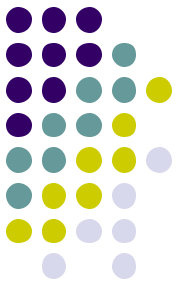
Open system, where it is not possible to hold other things constant



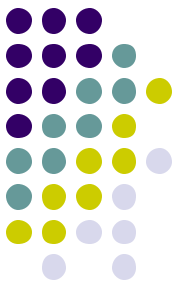
An alternative approach

- Necessary condition for good performance = investment
- Significant and controllable factor that affects investment = sector-specific regulation
- What really matters in investment decisions is perception of risk
- Instead of looking at objective measures of regulatory performance (which is quite difficult) why not go straight to perception?
 - As an investment driver, perception is not second best, **it is the first best**

How are investor perceptions formed?

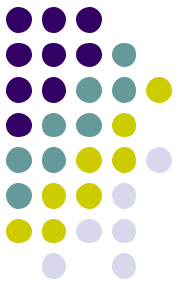


- Primarily from the symbolic environment constituted by
 - Investment research reports and investment firms
 - General and specialized media
 - Opinion leaders
 - Intra industry; intra-firm
 - NOT by public opinion
- Secondarily from direct observation of regulatory entities



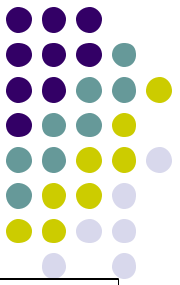
Method

- Panel studies using as small a number of questions as possible
 - Effective perception studies based on one question alone
 - Need to make minimal demands on the time of senior respondents
- Use a large number of respondents to balance out the biases
- Use traditional social-science perception instrument: 5-point Likert scale
- Focus on telecom **regulatory environment not regulatory agency per se**
 - In India, three dimensions reflect TRAI performance; three reflect DoT performance



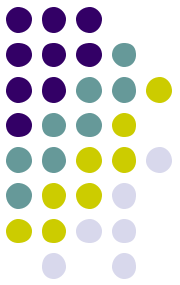
Method

- Five dimensions derived from GATS regulatory reference paper in 2004 and pilot tested
- Sixth added in 2006 at research planning meeting
- TRE studies completed in Latin America and Caribbean and being conducted in Africa
- Asian study conducted in August-October 2006



Panel composition

	IN (50)	ID (58)	PK (40)	PH (52)	LK (101)	TH (31)
Operators/equip. suppliers/industry assns	16 (32%)	37 (63.8%)	18 (45%)	19 (36.5%)	30 (29.7%)	18 (58%)
Educ./research orgs/telecom consultants/law firms	18 (36%)	13 (22.4%)	16 (40%)	16 (30.8%)	21 (20.8%)	1 (3.2%)
Journalists/ telecom user groups / civil society	14 (28%)	2 (3.5%)	2 (5%)	12 (23.1%)	16 (15.8%)	8 (25.8%)
Fin. institutions & private investment houses/banks & credit rating agencies	2 (4%)	4 (6.8%)	1 (2.5%)	2 (3.8%)	17 (16.8%)	0 (0%)
Fmr. members/ senior staff of reg. agencies/ other government agencies	0 (0%)	2 (3.5%)	3 (7.5%)	3 (5.8%)	17 (16.8%)	4 (12.9%)

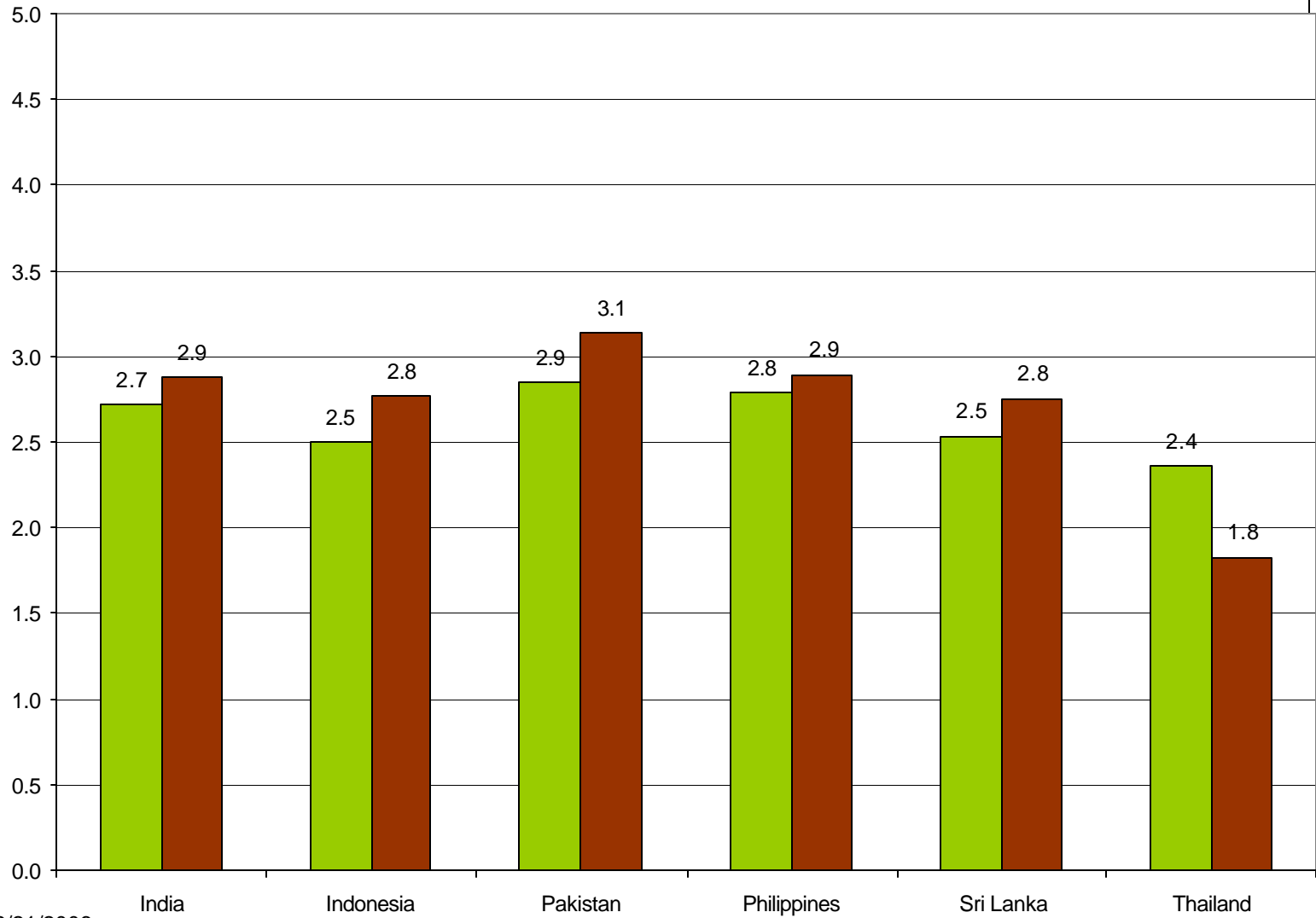


India, compared with . . .

- Indonesia
- Pakistan
- Philippines
- Sri Lanka
- Thailand

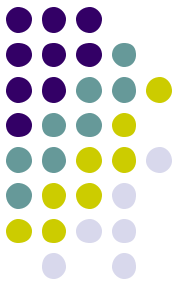


TRE Overall, Fixed & Mobile



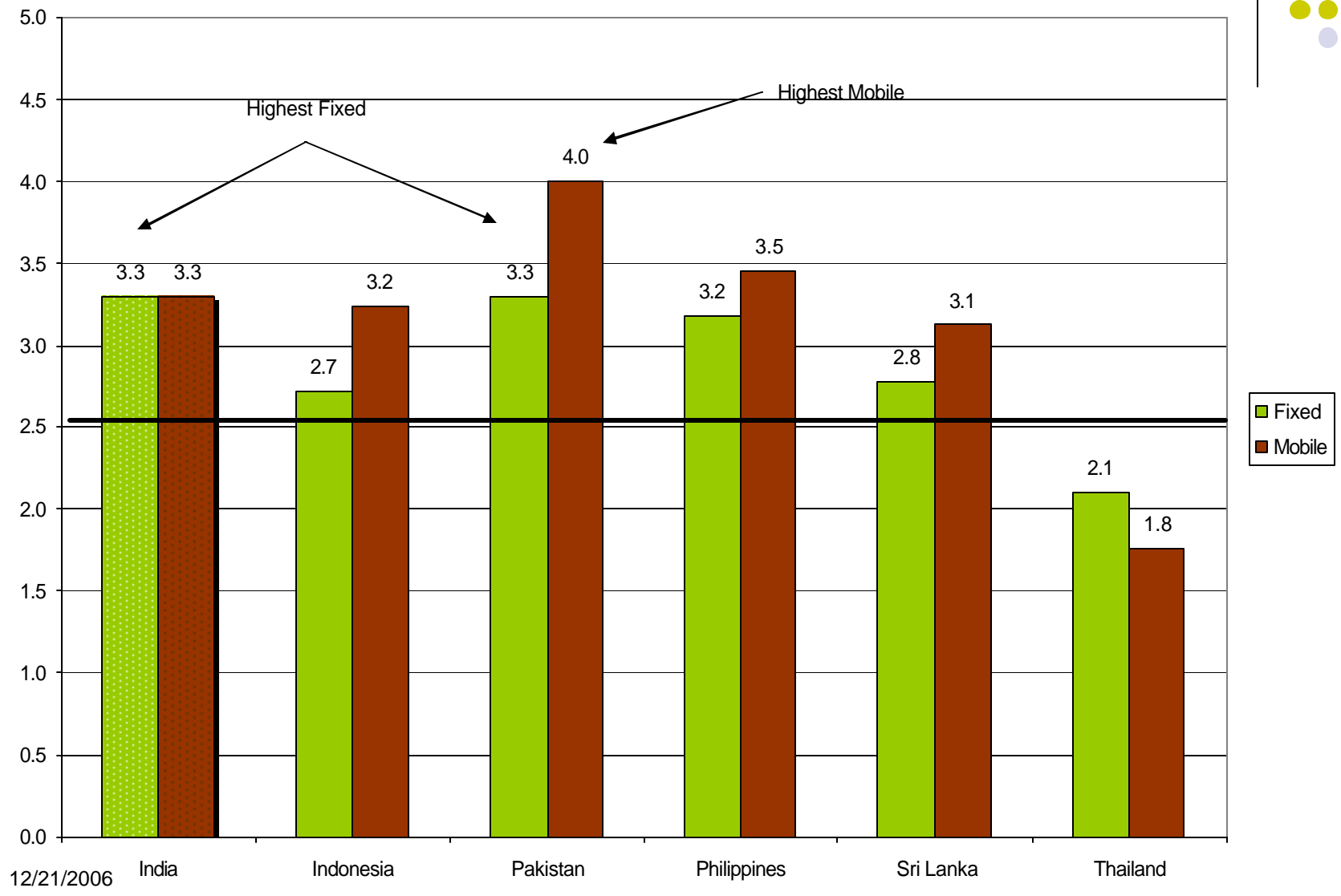
■ Fixed
■ Mobile

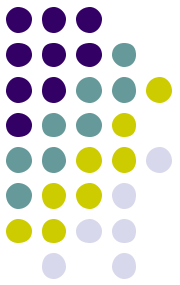
Detailed analysis, across each of six dimensions





TRE Market Entry, Fixed & Mobile



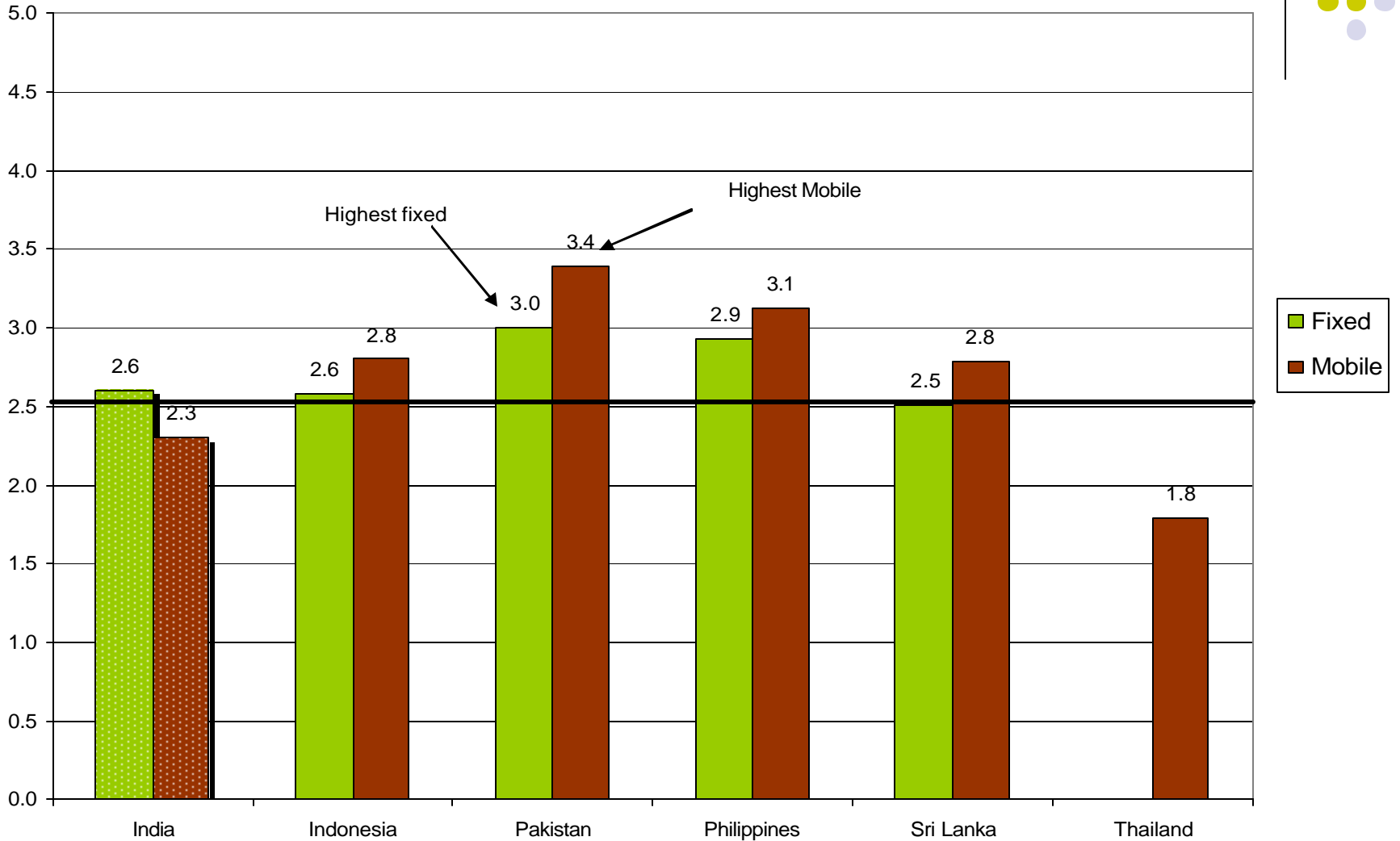


Market entry (licensing)

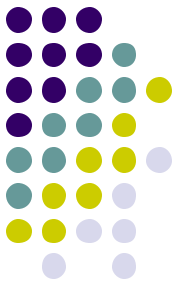
- Mobile-market entry TRE > fixed-market entry TRE, except in
 - Thailand
 - India (equal)
- India only below Pakistan
- Best performance on average both for fixed (2.9) and mobile (3.1)



TRE Scarce Resources, Fixed & Mobile



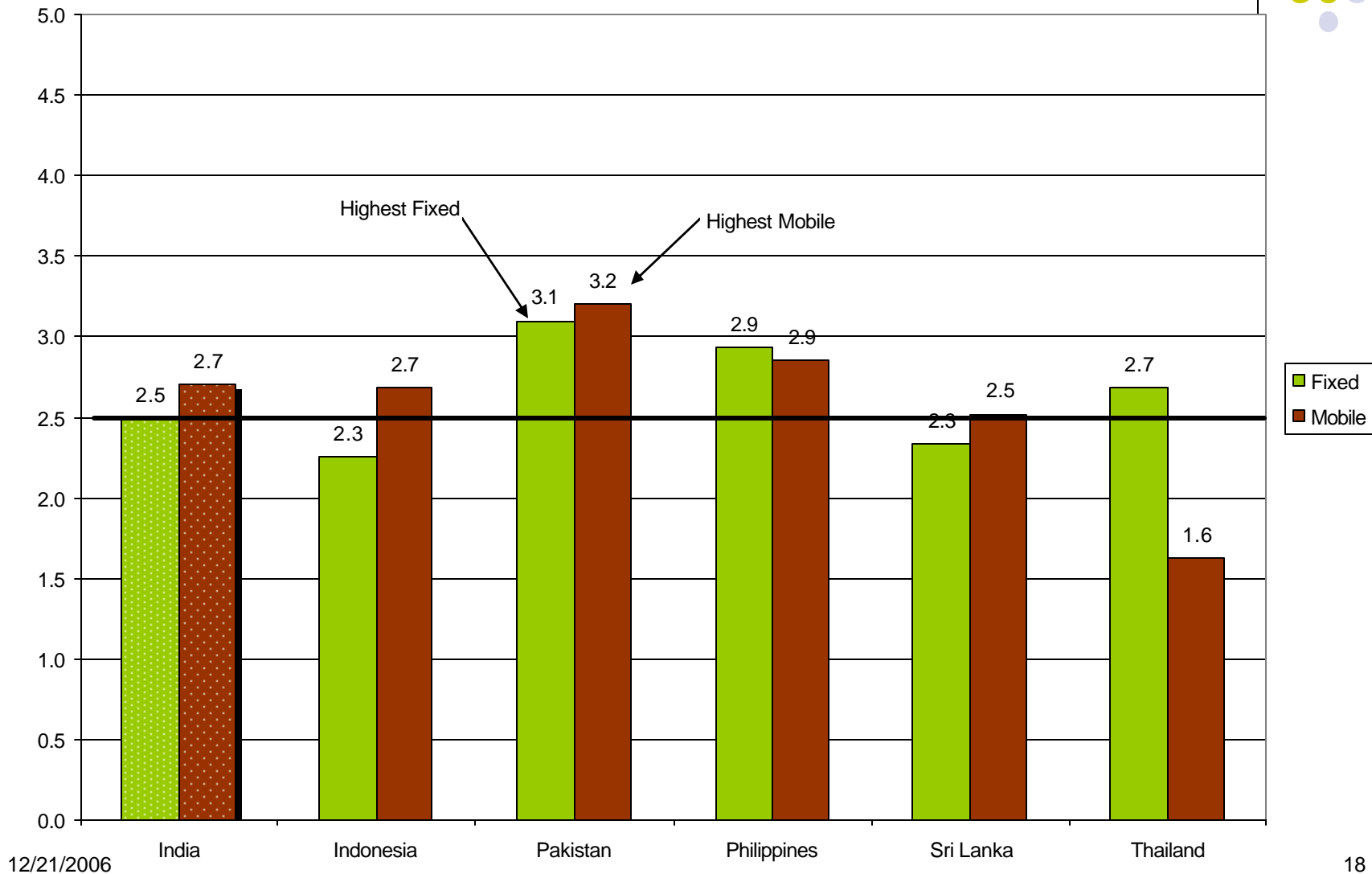
TRE scarce resources (primarily spectrum)

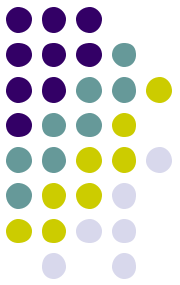


- Lower overall performance
- India leading from the rear especially re all important mobile spectrum
- Pakistan stands out
- Thailand did not ask question re fixed sector



TRE Interconnection, Fixed & Mobile



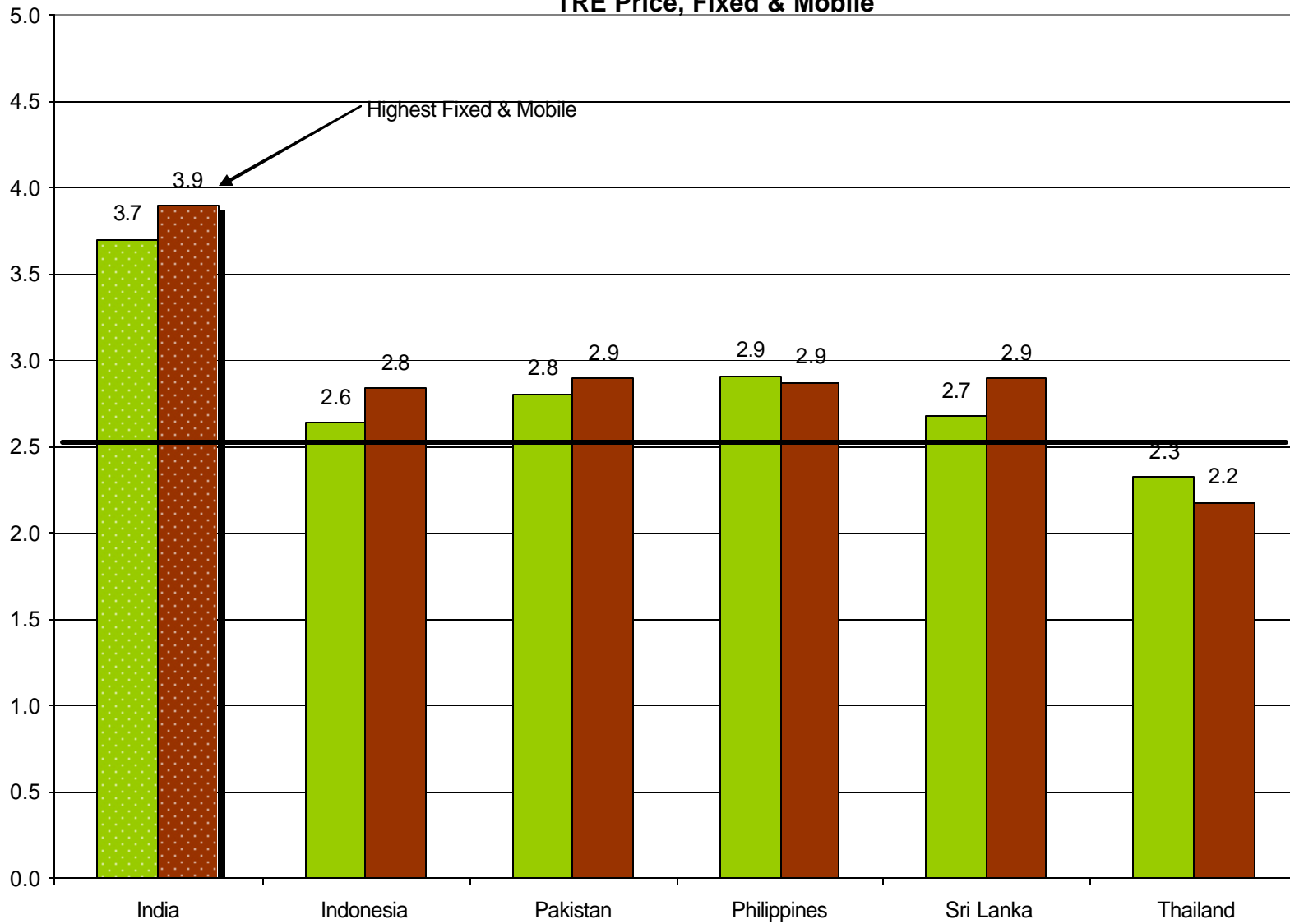


TRE interconnection

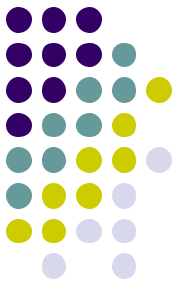
- Again, all countries have low performance
- India barely satisfactory; much room for improvement, especially in fixed (2.5/5)
- Pakistan ahead significantly



TRE Price, Fixed & Mobile



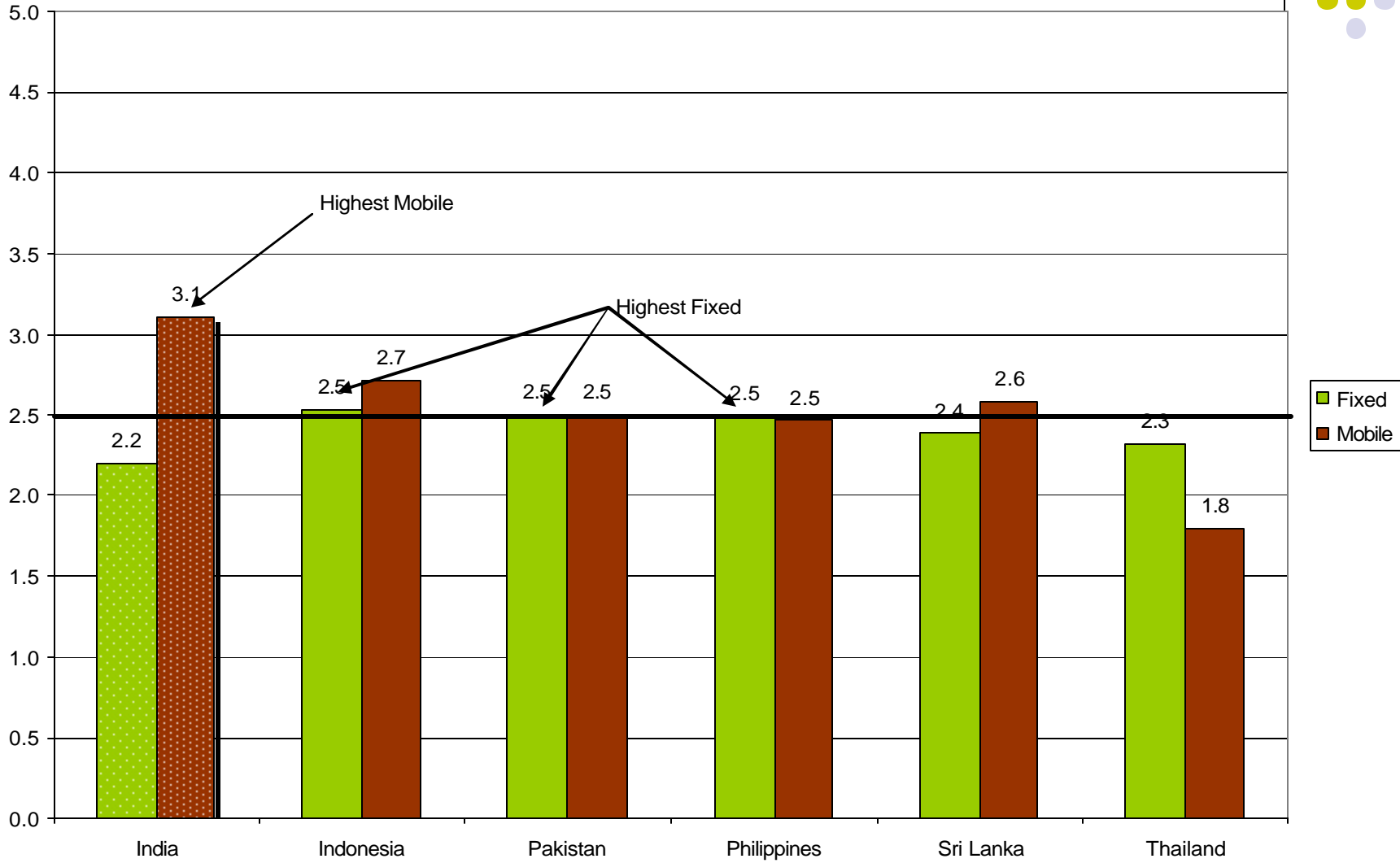
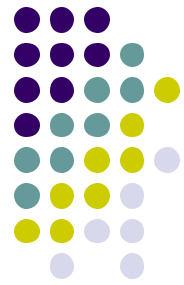
Fixed
Mobile



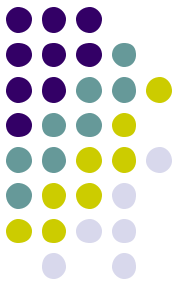
TRE price

- India is undisputed leader
 - Less is more
 - Fruits of forbearance and low prices
- Others with low prices such as Sri Lanka not getting TRE recognition possibly because
 - Procedure is cumbersome and
 - Low price levels have not been communicated
 - Doing well is not enough; need to communicate it too

TRE Anti-competitive Practices, Fixed & Mobile



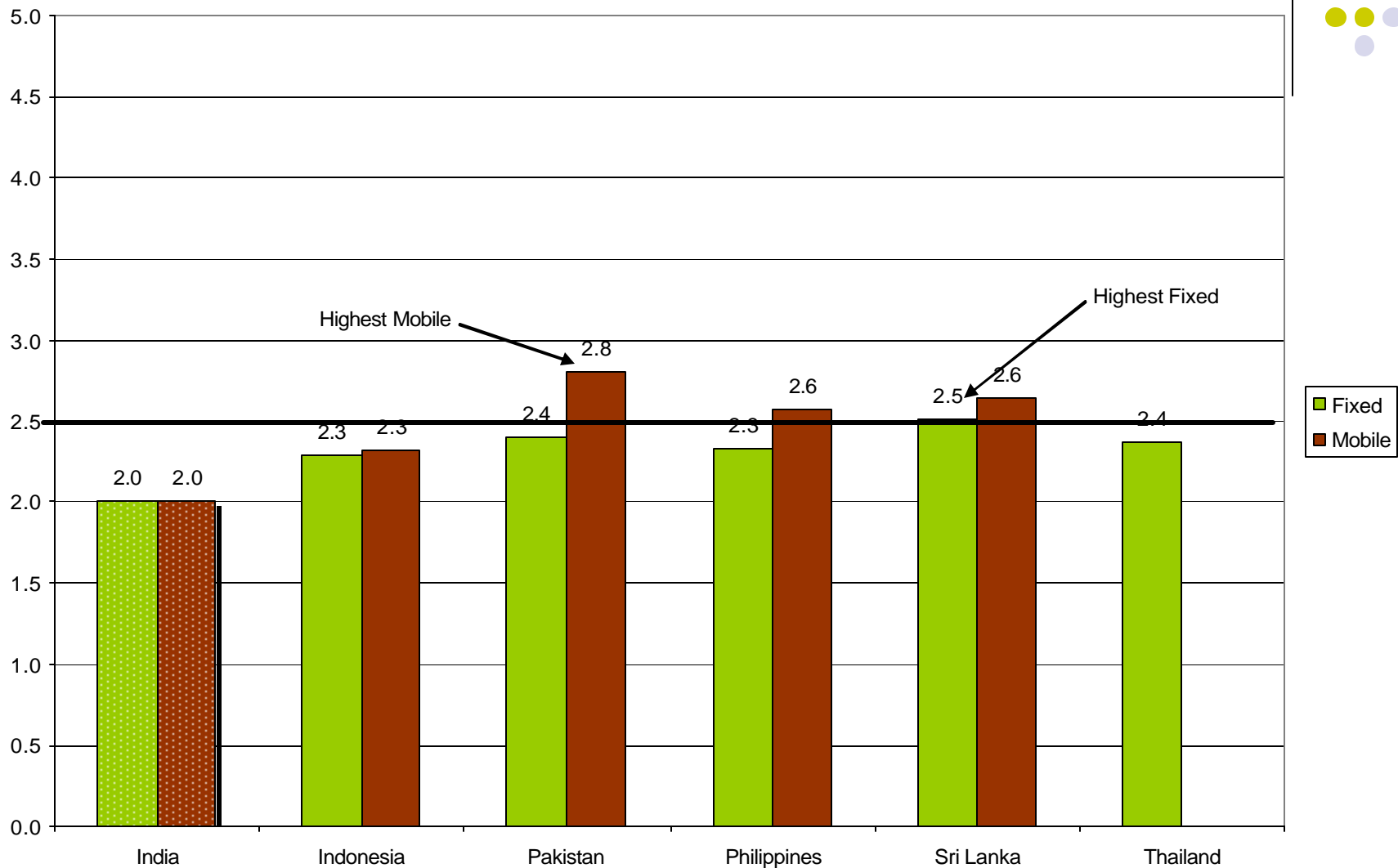
TRE anti-competitive practices



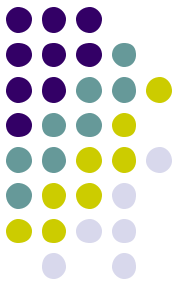
- All countries low
- India a mystery . . .
 - How can TRE be best in mobile and one of the worst in fixed?
 - BSNL?



TRE Universal Service, Fixed & Mobile



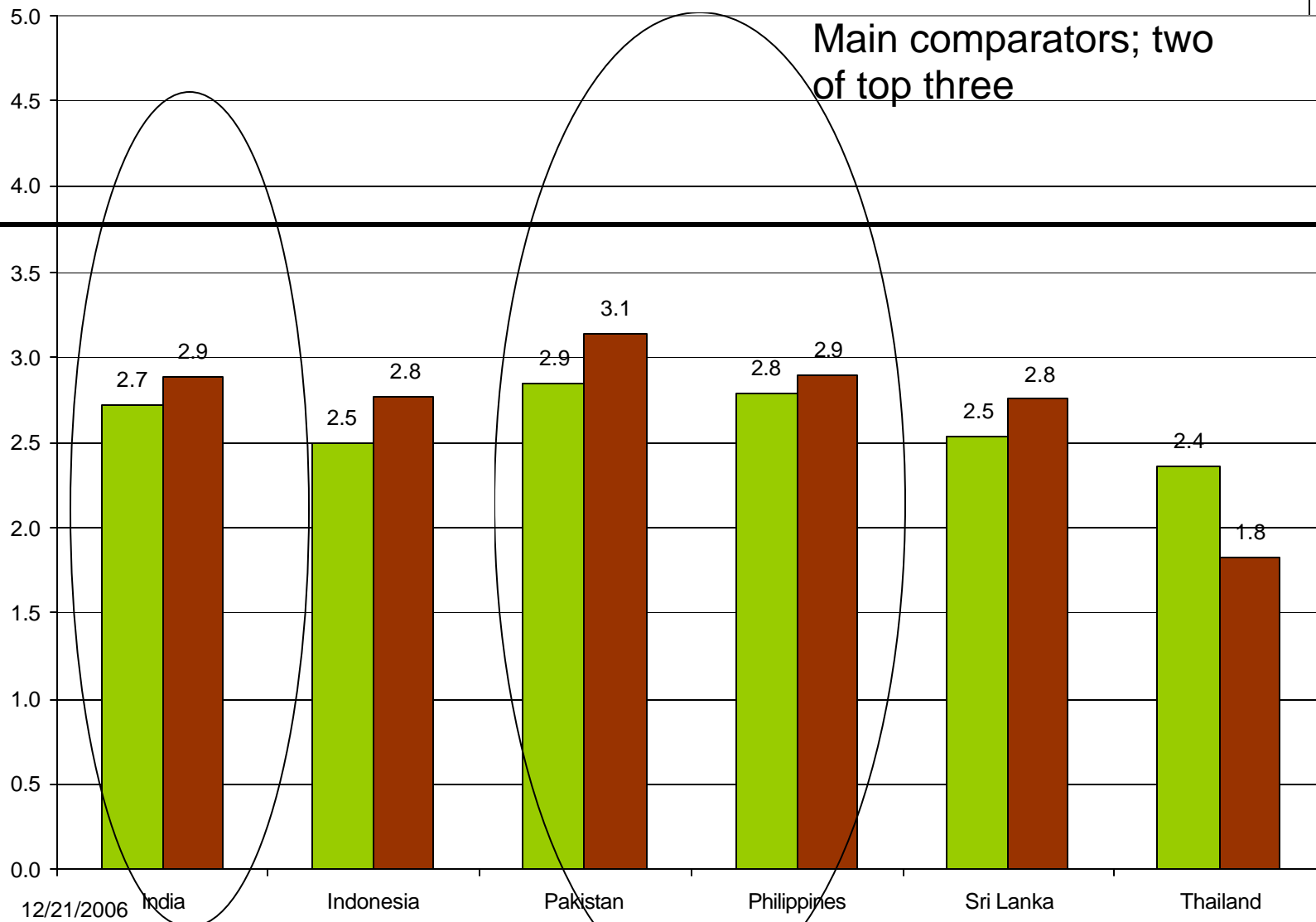
TRE universal service



- India at bottom of the class
 - More is less
 - World's 2nd largest USO fund; transparent smart subsidies
- Sri Lanka, a country with minimal USO activity, gets the highest ranking
- But note that TRE US scores are uniformly low; USO in most countries seen as unsatisfactory
 - Worst performance in both fixed (2.3) and mobile (2.5)
- Thailand did not ask question re mobile sector

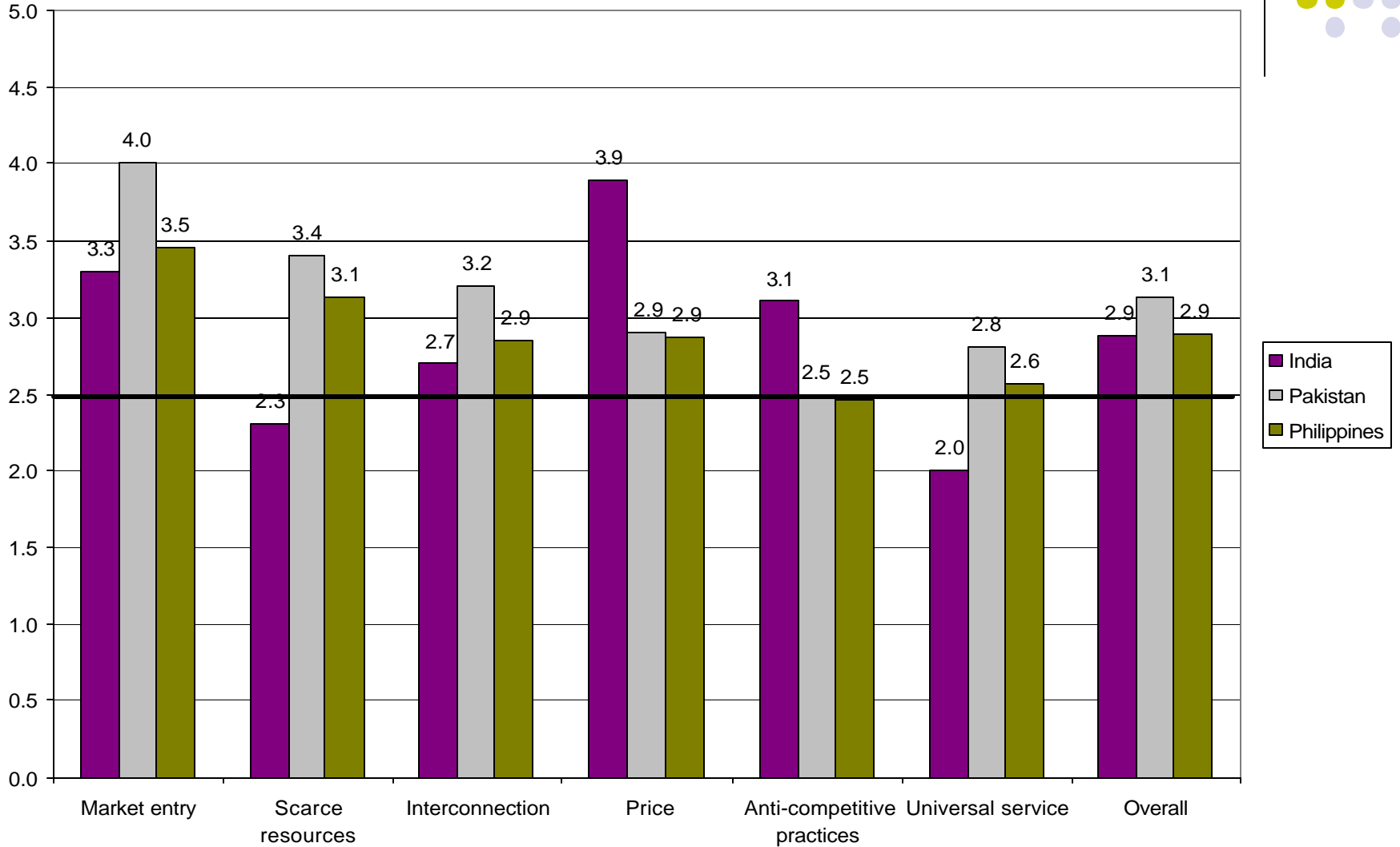


TRE Overall, Fixed & Mobile

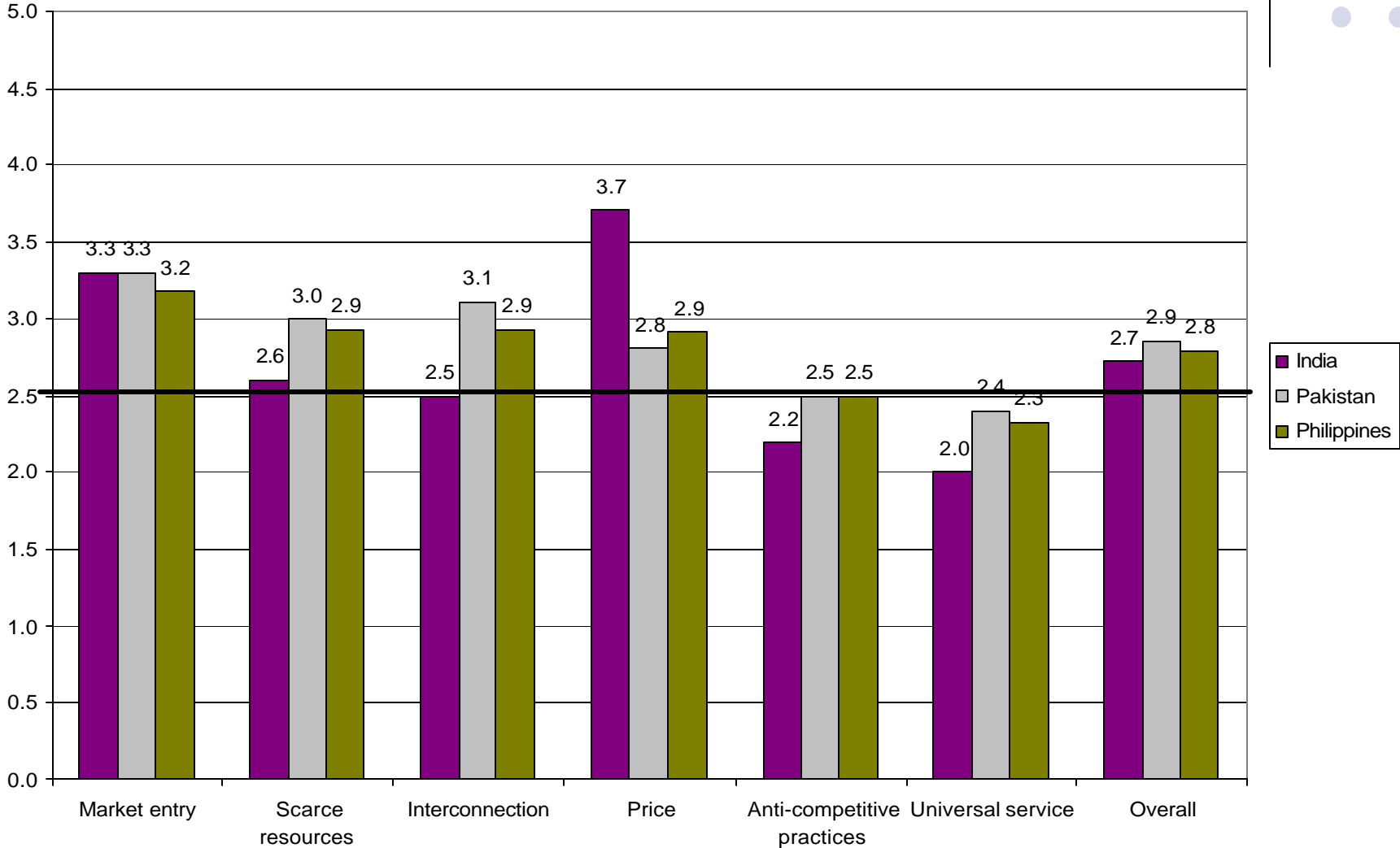
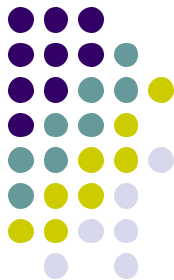


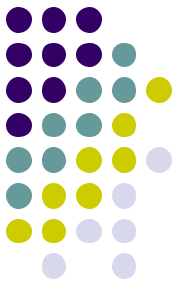
Fixed
Mobile

Mobile TRE, India, Pakistan and Philippines Compared



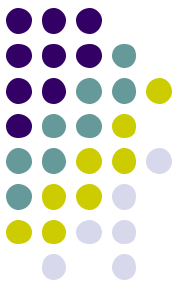
Fixed TRE, India in relation to Pakistan & Philippines





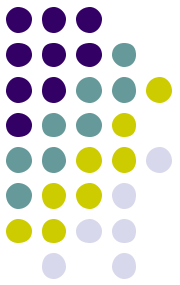
Discussion

- All countries can do better
 - Most converge on 2.5/5 (neither good nor bad) with exceptions of
 - TRE market entry (big-bang reform) and
 - TRE price (driven up by India's forbearance)
- Pakistan is best performer
 - India and Philippines form second tier
 - Indonesia and Sri Lanka next
 - Thailand last



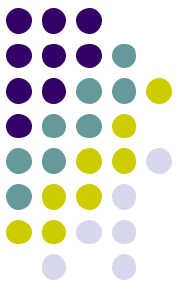
Discussion

- Thailand is the most prosperous country in the set (in per capita GDP terms) with highest sector performance indicators, yet
 - It has abysmal TRE indicators
- Possible explanations
 - Demand side: Thailand has highest per-capita income of all six; higher before Asian Economic Crisis
 - There may be perceptual difference re the questionnaire
 - Survey conducted immediately after Thaksin scandal re sale of mobile company to Temasek



Discussion

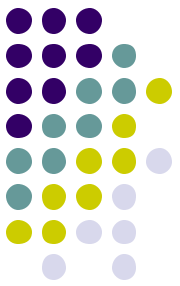
- Pakistan which overtook both India and Sri Lanka in basic telecom measures (fixed+mobile per 100 people) within the last two years shows that
 - **Correct “big-bang” reforms (transparent and broad market entry; privatization) followed by credible, effective implementation by a motivated regulatory agency can make a huge difference**
 - Unlike in India, regulatory agency controls all six dimensions of TRE and plays powerful role in policy as well
 - Massive increase in investment: more than 50% of total FDI into Pakistan comes to telecom sector



PK, IN, LK basic data

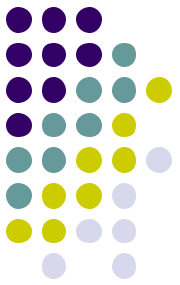
	Pakistan	India	Sri Lanka
Population	165 million	1,095 million	19.6 million
GNI per capita (2005), USD (Atlas)	690	720	1,160
GNI per capita (2005), USD (PPP)	2350	3460	4,520
Population below Poverty Line	32% <small>(est. 2001)</small>	25% <small>(est. 2001)</small>	23% <small>(est. 2005)</small>
Fixed teledensity (2006)	4.16	4.58	7.5
Mobile teledensity (2006)	25.22	8.82	21.5
Internet Users	7.5 million	50.6 million	0.3 million

Sources: PTA, TRAI and TRC websites. Data as of September 2006; actual numbers may be higher.



Discussion

- India and the Philippines are above average but not stellar performers
 - India is dragged down by TRE in spectrum and universal service: food for thought for the DoT
 - TRAI has a way to go on interconnection and anti-competitive practices
- Major soul searching required in Sri Lanka and Indonesia
 - Sri Lanka is moving in the wrong direction, while Indonesia is moving in the right direction
 - Hypothesis: Indonesia will pull ahead of Sri Lanka in 2007



Next steps

- LIRNEasia plans to conduct annual TRE surveys and publicize them in order to help improve regulatory environments
 - Hopefully covering additional countries
- TRE is a diagnostic tool
 - If scores are low
 - Possible that performance is poor
 - Also possible that communication of performance is inadequate